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Agricultural typology and agricultural settlements

P R E F A C E

The International Geographical Union held its European Regional Conference of August 1971 in Hungary. The Conference, which was attended by several hundred foreign experts and stirred the whole society of Hungarian geographers, was combined with a number of symposia. Of these the symposium of Szeged and Pécs on agricultural typology and agricultural settlements was the most populous with nearly one hundred participants.

The lectures made at the symposium, which took place between August 15 and 19, 1971, were of a high standard. With the presentation of research methods in different natural, economic and social conditions as well as with discussions about the methods and results, the Conference was an important contribution to the development of this discipline.

Special emphasis was given in the lectures to the relation between geography and practice and to the possibly fullest satisfaction of the ever growing need to society for geographical research. The growing demand underlines the social-economic importance of geography.

During the symposium the organizers tried to make it possible for the guests to study the facts of the Hungarian reality at first hand. They believe that the visits to the agricultural cooperatives of Ambrózfalva and Szatymaz and the state farm of Hosszuhegy as well as the excursions east of the Tisza, between the Danube and the Tisza, and in the hills of Baranya County helped the guests to get a realistic picture of the situation of our agriculture and agricultural settlements.

As an important advantage of the symposium is appreciated the fact that the participants could establish or strengthen personal contact between them and could exchange their views with many researchers in their closer fields. It is gratifying that the results of this can be measured also in our since then growing foreign relations.

In collecting and publishing the papers read at the symposium we have been led by the conviction that their professional value is durable and their publication in a volume will be a gain for the literature. The volume contains also those papers which were submitted but not read for want of time.

We express our thanks to the authors who helped us with the arrangement of the material of their papers. Our thanks go also to the authorities of this University for having made the publication of this volume possible.

Szeged, May. 18, 1972

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GEOGRAPHICAL TYPOLOGY OF VITICULTURE IN SOUTH-EASTERN EUROPE

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It is first of all industry where economic co-operation has proved to be fructuous also in the countries of South-Eastern Europe. However, we believe that the intensification of economic integration will make its effect felt in agriculture, too.

A viticultural co-operation in South-Eastern Europe /e. g. co-ordination of specialization in grape varieties, co-ordination of ripening times of grapes and use of machines/ would require the knowledge of the state of vineyards as well as the delimitation and characterization of the regional types of viticulture.

Keeping this requirement in view, we made an attempt at the regional typology of viticulture in South-Eastern Europe.

This time, I wish only to present the method of our investigation.

The regional types of viticulture were approached from two sides:

I. First, the territorial distribution of factors was examined which, in our opinion, could contribute to the delimitation of contiguous viticultural areas /belts/.

1/ On the basis of the surface features of habitats, we were able to differentiate the viticultural areas of plains, hills and mountains. To delimitation we use the slope categories found in the Hungarian literature. Accordingly, we distinguished the so-called pediments /slope of 0 to 10 percent/, mountain medium /slope of 10 to 20 percent/ and mountain height /slope above 20 percent/.

Seventy to eighty percent of the Great Plain vineyards occupy areas sloping under 10 percent, 70 percent of the hilly vineyards are situated on slopes of 0 to 20 percent, while the three types of slopes of the mountainous vineyards are distributed in 10, 70 and 20 percents /pediment, mountain medium and mountain height/.

2/ Of the climatic elements, the mean annual temperature, the territorial distribution of rainfall and sunshine, as well as the meso- and micro-climatic characteristics of the vineyards were examined.

3/ The soil conditions of the vineyards and their effects on viticulture.

4/ On the basis of the size and percentual change of vineyards, we investigated the size of the viticultural belts of South-Eastern Europe, and the trend of their spatial changes as well.

5/ The level of regional specialization was determined by the share of vineyards in the total agricultural area.

6/ Distribution of vineyards according to farm and ownership.

7/ Regional concentration of the vine-stock.

8/ Regional characteristics of specialization in variety.

9/ The regional differences in the productive capacity of vine-stock were determined by an indirect method:

a/ We calculated the absolute increase of the vineyards by administrative units as compared to the averages of 1950 to 1955. Hereupon, we obtained the ratio of the 0- to 15-year-old vine-stocks for each vineyard. Since the superannuated vine-stocks have been partly replaced by new plantations, we supposed that the total vineyard, either unchanged or scarcely increased, may cover a considerable improvement, occasionally.

b/ Starting from this supposition, we compared the regional tendencies and percentual change of the average yields with the trend of vineyard;

c/ Finally, the administrative unit areas of 1965 to 1968 were compared with the total area before World War II, obtaining, thus, the ratio of the more than 25- to 35-year-old vine-stock.

On this basis we could distinguish:

<u>viticultural regions with excellent productive capacity</u> where the 0- to 15-year-old vine-stock makes up more than 35 percent, and average yields exceed 50 q/ha;

viticultural regions with fair productive capacity where the 0- to 15-year-old vine-stock represents 10 to 20 percent, and average yields range from 30 to 40 q/ha;

viticultural regions with poor productive capacity where the 0- to 15-year-old vine-stock represents less than 5 percent and average yields do not attain 30 q/ha;

and finally,

ruining vineyards in which the young vine-stock do not make up but a negligible proportion, which were not reconstructed, and the average yields of which decreased by more than 25 percent during the last ten years.

10/ Annual quantity and percentual change of the grape yields.

11/ Level of viticulture; average quantity and percentual distribution of grape yields.

The above-mentioned factors were synthetized by a cartographic method, and the geographical types of viticulture were formed on the basis of the territorial coincidence of these factors.

II. We applied land use maps to our agro-geographical investigation of viticultural belts. The informations obtained by land use survey proved to be instrumental in the delimitation and characterization of viticultural microregions as they explored those correlations which are not found in the statistics /e. g. spatial differentiation of viticulture etc./.

Obviously, our land use survey does not comprise all the viticultural belts of South-Eastern Europe; this task will fall to the future.

On the basis of the land use maps, we surveyed the trend and measure of the spatial changes of viticulture. For this purpose, we used the maps of 1770, 1880 and 1950 and those prepared between 1965 and 1970. E. g. the series of maps of the Danube-Tisza Interfluve represents the deconcentration of the vineyards between 1880 and 1950, being one of the motive forces that brought about scattered settlements. However, the vineyards of Tokaj are characterized by the "sliding down" of the vine-stock /to the pediment/ referring to efficient production /higher yields, mechanizable cultivation etc./.

On the other hand, the land use maps of 1965 and 1970 aimed at the true representation of the spatial differentiation in productive capacity.

Consequently, we kept the following factors in view during our survey:

- Age and productive capacity of the vine-stock;
young, non producing /0 to 5 years old/,
young, producing /5 to 25 years old/,
superannuated, producing, reconstructed /more than 30 years old/,
superannuated, producing, stock-deficient /in 15 to 25 percent/,
superannuated, producing, ruining /stock deficiency exceedes 30 percent/,
ruined.

- Way of cultivation;
stakeless, staking, wired propping.

- Intercultural fruit-trees;
absent, young, reconstructed, deficient.

By the combination of these factors, we formed the regional types of viticulture. For example:

young, non producing vine-stock traditionally cultivated; young, non producing vine-stock with wired propping etc.

The land use maps were made by field studies on the one hand, and by aerial photo interpretation, on the other. In general, our survey was summed up on maps of 1:25 000 scale, while the survey itself was represented on basic maps of 1:10 000 scale. In the regional typology of the vine-stocks the aerial photos on the scale 1:5000 to 1:1000 proved to be the most instrumental.

By the help of the two methods we could differentiate:

"A" Agricultural area of viticultural character, or viticultural belt.

"B" Agricultural area with viticultural region.

"C" Agricultural area with viticultural micro-region.

"D" Agricultural area without viticulture.

ORIENTATIONS DE L'UTILISATION DES TERRES ARABLES

Etude Comparative sur l'exemple de la Pologne, de la Tchécoslovaquie et de la Hongrie.

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Le présent rapport est basé sur les matériaux statistiques concernant la structure des cultures pour les années 1963-1965. Pour la Pologne, l'unité de base est "powiat", pour la Tchécoslovaquie et la Hongrie on a pris des unités analogues, respectivement "okres" et "jaras". Il faudrait cependant ajouter que ces unités different sensiblement en ce qui concerne leur superficie. Ainsi, un "powiat" et un "okres" ont en moyenne de 900 a 1100 km^2, tandis que la superficie d'un "jaras" est d'environ 500-600 km^2. Ces différences influent indubitablement sur le degré de généralisation des matériaux statistiques. Cependant, dans les études comparatives a petite échelle, englobant quelques pays, différences dans la superficie des unités de base ne peuvent pas influer sensiblement sur les résultats définitifs des recherches.

Pour déterminer les orientations de l'utilisation des terres arables, qui réfletent l'utilisation du sol des exploitations ou des terrains agricoles pour une telle ou une autre culture, on s'est servi de méthode élaborée par

la Section de la Géographie Agricole de l'Institut de Géographie de l'A.P.S. /Bibliographie/ Cette méthode de détermination des éléments principaux de la structure de cultures, dits méthode de quotients successifs, permet la comparabilité des résultats dans le temps et dans l'espace. Elle consiste à grouper les cultures d'après des critères établis, à définir les proportions entre les grupes principaux de cultures, et ensuite à déterminer les cultures dominantes dans chacun des groupes. Pour mieux comprendre les principes fondamentaux de la methode, et apprécier sa valeur et son utilité dans les recherches géographiques de l'agriculture, il serait peut-être utile de lui consacrer quelques mots.

Comme on le sait, la statistique concernant la structure des cultures et dont une image synthétique est justement l'orientation de l'utilisation des terres arables, englobe de nombreuses plantes cultivables. Analyser chacune d'elles séparement n'aurait pas donné ni une image claire ni de bases de généralisation faciles. Par contre, un groupement convenable des cultures, basé sur des critères homogènes, donne une possibilité de traiter synthétiquement la structure des cultures. On a proposé de critères divers. Etant donné que dans notre cas il s'agit des méthodes de l'utilisation du sol, on a admis de critères agrotechniques, c'est a dire: exigences des plantes quant au milieu, apport du travail vif, intensité de fertilisation, rôle dans l'assolement. D'après ces critères on a distingué 3 principaux groupes de cultures, à savoir:

1/ Cultures intensifiantes renfermant toutes les plantes sarolées et la plupart des plantes industrielles. Ce groupe des plantes, dont les exigences en ce qui concerne le travail la fertilisation et la culture du sol sont

élevées, laissent, après leur récolte, le milieu naturel bien préparé à recevoir les plantes succédant dans la rotation.

2/ Cultures structurifères - plantes papilionacées - sont peu exigeantes. Grâce a leur faculté naturelle d'absorber l'azote atmospherique, elles influent favorablement sur le sol, en emélierant sa structure et sa fertilité, et en le préparant a reçevoir d'autres plantes de l'assolément.

3/ Cultures extractives - surtout céréales - n'exigent pas beaucoup, mais épuisent le sol au maximum. L'emélioration de la fertilité du sol après les cultures céréalières exige une fertilisation accrue et une selection des plantes dans l'assolement.

Actuellement, en raison de l'accroissement de l'usage des engrais chimiques, on conteste parfois les critères de classifications susdits. Il semble cependant que des plantes particulières diffèrent toujours par leurs exigences concernant la fumure organique et aussi l'engraissage minérale, qu'elles continuent à demander un apport différent du travail vif et mécanisé. Aussi un choix rationnel des cultures dans l'assolement, n'a rien perdu de son importance, malgré la fertilisation. Une euphorie momentanée, liée aux possibilités découlant de l'accroissement de la fertilisation minérale, cède place - dans les pays représentant une technique agricole supérieure - a la discussion renouvellée sur un assolement rationnel.

Notre classification, baséo sur des oritères agrotechniques homogènes permet de reduire un riche matériel statistique de la structure des cultures, à quelques valeurs agreges. L'ensemble de ces valeurs ainsi que leurs proportions reciproques sont une base permettant de définir les orientations de l'utilisation des terres arables. La méthode des

quotients successifs, appliquée pour déterminer le rôle des groupes particuliers de cultures permet de définir les proportions de groupes principaux sans autres calculs compliques. Le nombre des quotients depend aussi bien de l'échelle que du but des recherches. Il ne peut pas être exagéré pour ne pas compliquer des résultats. Par contre, il est souhaitable qu' il soit divisible au maximum, ce qui permettrait de recréer au besoin, les systemes d'assolements pratiqués et assurerait une certaine elasticité necessaire.

	Extractives	Intensifiantes	Structuriferes
1	360 ha	210	120
2	180	105	60
3	120	70	40
4	90	52.5	30
5	72	42	24
6	60	35	20

L'ensemble des 6 quotients successifs choisis d'après leur grandeur /nombres soulignés ci-dessus/ permet de définir facilement l'orientation de l'utilisation des terres arables, presentée sous la formule $E_3 + I_2 + S_1$. Le nombre des quotients /de 6 a 1/ d'un groupe donné des cultures représente sa part dans la structure des cultures /dominante, égale, ou secondaire/ et forme la base pour la determination les orientations de l'utilisation des terres arables. Le nom de l'orientation est determiné par les noms des plantes cultivées dominantes dans les cadres des groupes principaux des cultures.

Nos recherches comparatives des orientations de l'utilisation des terres arables en Pologne, en Tchécoslovaquie et en Hongrie sont basées sur matériaux statistiques convertis a l'aide de notre méthode des quotients successifs, et présentés sour forme cartographique, uniforme par Mr. R. Kulikowski.

L'utilisation des terres arables dans les régions en questions est, comme l'indique la carte, fortement différenciée. La répartition et la différenciation des orientations de l'utilisation des terres arables sont un reflet des conditions naturelles et autres variées, ainsi que des différences des traits sociaux et de propriété des agricultures particuliéres.

En ce qui concerne les conditions naturelles, le territoire examiné renferme une série des unités physiographiques de rang supérier, dont le relief et la formation géologique sont sensiblement différents. Ainsi par exemple le territoire de la Pologne septentrionale et centrale est formé des plaines couvertes d'une couche épaisse des formation du quaternaire, présentant un micro-relief postglaciaire caractéristique. La Pologne méridionale ce sont vieilles montagnes et des plateaux formées frontaliere entre la Pologne et le Tchécoslovaquie englobe à l'Ouest les Sudètes - ancien massif montagneux, riche en roches diverses, a l'Est les Carpates - chaîne jeune, formée dans sa partie Nord et Est /Carpates Extérieures/ surtout de flysch et dans sa partie Sud /Carpates Intérieures/ de diverses roches cristallines, magmatiques et sédimentaires au relief tres varié.

Les conditions naturelles de la Tchécoslovaquie sont encore plus différenciees. Outre des diverses chaines des Carpates qui occupent la Slovaquie Nord et Centrale, le Massif de Boheme présente aussi un relief accidenté. L'ancien novau cristallin du Massif qui forme un vaste plateau est entouré des diverses chaines de montagnes qui en tracent les limites. Au Nord - les Sudètes et les Monts Metalliferes, à l'Ouest - la Forêt de Bohême, et Sumava au Sud et a l'Est - les Collines de Moravie. Les collines de la Bohême Centrale, le plateau de Budejovice, la vallée de l'Elbe animent encore d'avantage la relief de la Bohême, les vallées du Danube et de la Tisza - celui de la Slovaquie.

Le territoire de la Hongrie se confond presque avec la Grande et la Petite Plaines de Hongrie. Les terrains au relief plus accidenté se trouvent seulement au Nord de Pecs - /les Monts Mecsek/, au Nord de Balaton - /la Forêt de Bakony/, et au Nord-Est de Budapest - /Monts Matra/.

Différences de niveau au dessus de la mer trés marquées, un relief du terrain varié, ainsi qu'une formation géologique differenciée attribuent à former sur le territoire analysé des conditions climatiques et pédologiques tres variées. Du point de vue des besoins de l'agriculture, les plus défavorables conditions climatiques et pédologiques sont rencontrées en Pologne. Les sols podzoliques légers, formés de sédiments quaternaires, aux rapports hydriques défectueux, y prédominent /55 %/. Ils exigent une fumure intensive, un assolement rationnel et des travaux de bonifications. Leur présence freine fortement les possibilités d'introduction des cultures plus avantageuses, telles que: froment, betteraves à sucre, luzerne etc. Un climat relativement frais /température moyenne annuelle de 6 a 8°C/ une période de végétation coure /de 180 à 220 jours/ ainsi que grands écarts du climat, limitent les cultures des plantes délicates et rendent impossible une répartition rationelle des travaux de champs. Le nombre de précipitations annuel /de 500 à 1100 mm/ et leur répartition dans la période de végétation /environ 60 % de la somme annuel/ récompensent dans une certaine mesure à l'agriculture polonaise les desavantages du climat et favorisent les cultures des céréales et par endroits des plantes sarclées.

Les conditions climatiques et pédologiques de la Tchécoslovaquie et de la Hongrie sont sensiblement meilleures. Des sols bruns fertiles et des terres noires très fertiles prédominent en Bohême, en Moravie, sur les plaines de la Slovaquie et en Hongrie, exeption faite des terrains montagneux et de la zone entre le Danube et la Tisza ainsi que de la Haute Tisza ou on rencontre des sols sableux. Le climat chaud

/moyenne annuelle pour la Tchécoslovaquie de 8 à 11°C, pour la Hongrie de 10 a 11°C/ ainsi que la période de végétation relativement long, permettent de cultiver à une grande échelle des plantes plus precieuses /froment, maïs, luzerne/. Le climat est cependant relativement sec ce qui constitue un inconvenient à l'agriculture. Les terrains de la Moravie Sud, de la partie Slovaque, de la vallée du Danube, de la grande Plaine de Hongrie recoivent environ 500 mm de précipitations par an, ce qui n'est pas suffisant aux plantes cultivables - surtout si on tient compte des sécheresses saisonnieres en été /juillet-août/ - et exige les travaux d'irrigation.

Ces conditions naturelles, présentées ici brièvement, influent sensiblement aux orientations de l'utilisation du sol. Le niveau de l'agriculture est, par contre, déterminé par les conditions historiques et sociales, Sur le territoire examiné elles ont été influencées par leur passé politique. Les régions de la Pologne, de la Tchécoslovaquie et da la Hongrie faisaient partie de divers organismes d'Etat /la Prusse, la Russie, l'Autriche-Hongrie/.

Aujourd'hui, bien que le système politique et économique de ces pays soit pareil, les conditions sociales et économiques demeurent différentes. Ceci concerne en particulier les conditions sociales et de propriété de l'agriculture.

En Tchécoslovaquie et en Hongrie l'agriculture a été presque entiérement collectivisée. De vastes exploitations agricoles socialisées /de 1000 à 4000 ha/ prédominent et on ne rencontre de propriétés privées que dans les zones suburbaines et montagneuses. Par contre, en Pologne l'économic individuelle au grand morcellement d'exploitations, prédomine. Une exploitation moyenne de la Pologne Centrale est de 7 à 10 ha., de la Pologne Sud-Est- seulement de 2 à 5 ha. C'est

seulement dans la Pologne Nord-Ouest que la part des exploitations socialisées plus vastes prédomine.

Les orientations de l'utilisation des terres arables dépendent aussi des réserves de la main-d'oeuvre agricole, de l'équipement techniques et surtout de la politique agricole du pays qui choisit et détermine des orientations de production préferées /céréalière, de légumes, de plantes industrielles etc./ Aussi dans ce domaine chacun des pays analysés présente ses particularités.

En Pologne, une densité relativement élevée de la population agricole /de 60 à 120 personnes par 100 ha de terres agricoles/ permet les orientations intensives auprès un niveau technique moyen ot même bas. En Tchécoslovaquie et en Hongrie, oú le main-d'oeuvre est insuffisant, les orientations plus intensiven exigent un usage accoru des machines agricoles. L'impossibilités de remplacer le travail de l'homme par le travail mécanisé force à abandonner les orientations intensiven de l'utilisation du sol en faveur des plus extensives, soit au changement de la forme de l'utilisation. Récemment, on observe de tels phénomènes dans les Sudètes polonaises et dans les Carpates Slovaques.

La diversité des conditions naturelles, sociales et économiques sur le territoire examiné, dont nous avons présenté ici en grand abrégé, trouve son reflet dans l'organisation de l'économie de champs. En prenant comme oritère l'intensité de l'agriculture des terres arables, on peut déterminer des orientations suivantes:

1. Orientations extensives céréalières

Les plus extensives orientations de l'utilisation den terres arables - haute preponderance du seigle avec la participation des pommes de terre /E_5sc + I_1st/ n'apparaissent

que dans 5 powiats polonais. Leur répartition est liée étroitement aux sols faibles sablonneux, et apparait surtout dans les exploitations assez grands, à la main-d'oeuvre insuffisante. Les orientations pareilles seigle-avoine ou avoine-seigle, présentant le même degré d'extensivité apparaissent aussi au Nord-Est de la Pologne. Là, leur présence est liée aux conditions climatiques difficiles /période de végétation courte/ et au retard du développement de l'agriculture.

Les orientations seigle avec pommes de terre et fourragères - vivaces ou annuelles /E_4so + I_1st + S_1/ apparaissent aussi sur les sols faibles dans des districts plus nombreux, des volevodies de Bialystok, de Koszalin et de Zielona Gora et forment un îlot dans la voievodie de Kielce.

Surtout le territoire de Carpates on observe des orientations de l'utilisation du sol bien caractéristiques. Les parties de la haute montagne des deux côtés de la frontière polono-tchécoslovaque, avec des conditions climatiques défavorables, présentent des orientations un peu plus intensives: avoine avec pommes de terre, parfois avec la participation du trèfle /E_3ar + I_2st + S_1tp/. Les terrains situés plus bas, du coté polonais /Beskyde Bas, l'avant-pays Carpatique/ présentent des orientations froment-seigle soit froment-avoine avec pommes de terre et trèfle. Sur les versants Sud des Carpates, en Slovaquie l'orge occupe la place du seigle et les fourragères mélangées la place du trefle. Ainsi les orientations: froment-orge avec pommes de terre et la participation des fourragères mélangées y prédominent.

Sur les terrains montagneux du Nord, de l'Ouest et du Sud de la Bohême et sur une partie des collines de Moravie, l'utilisation du sol est également peu intensive. Les conditions naturelles assez rudes ainsi que le manque de la

main-d'oeuvre agricole donnent ici la préférence aux orientations céréales-fourragères, froment-avoine-seigle, soit seigle-avoine avec trefle et luzerne et avec la participation des pommes de terre /E_3tv, av,sc + I_1st + S_2tp,ms/.

En Hongrie, l'orientation extensive seigle avec mais et luzerne apparait localement sur les sols sablonneux entre le Danube et la Tisza.

2. Orientations céréales-plantes sarclées-intensives /E_4 + I_2 /

En Pologne, l'utilisation des terres arables assez intensive est representeé par l'orientation seigle-pommes de terre /E_4sc + I_2st/. Sur la plaine centrale de la Pologne s'est une orientation dominante et typique aux sols pedzoliques légers. Une orientation, un peu moins intensive, seigle-avoine-pommes de terre apparait à la limite de la région industrielle de la Haute Silésie, oú les conditions pédologiques sont encore moins favorables. On rencontre des orientations semblables sur le territoire des collines de Moravie.

Une orientation assez avantageuse, froment-seigle-pommes de terre, reste en rapport étroit aux sols plus fertiles et apparaît en Pologne aux environs de Lublin, Rrzemysl, Wroclaw, au pied des Sudètes et dans la région de la basse Vistule. En dehors de la Pologne, on rencontre des orientations pareilles dans la Slovaquie Sud-Est, a savoir: froment-mais, dans la partie centrale de la grande Plaine de Hongrie: froment avec mais et luzerne, et l'orientation froment-orge-maîs qu'on rencontre en Slovaquie à Zytni Ostrov et sur le territoire Nord-Ouest de la Hongrie /Petite Plaine de Hongrie/.

La plus favorable orientation dans ce groupe - froment, betteraves à sucre avec la participation des pommes de terre et du trèfle /E_3tv + I_1bs, st + S_1tp/ correspond aux meilleures

conditions naturelles et apparaît en Pologne sur la plaine de Wroclaw, en Cuiavie et a Zulawy. Une orientation pareille tchécoslovaque: froment-orge-betteraves à sucre avec trèfle /E_3tv, hb + I_2bs + S_1tp/ occupe aussi le plus favorable milieu c'est à dire la vallée de l'Elbe /Laba/ et le Sud-Est de la Moravie.

3. Orientations avec la dominance de plantes sarclées - hautement intensives /I_4 + E_2 /

La plus intensive utilisation du sol est répresentée par lesorientations: légumes ou légumes-pommes de terre avec céréales. Elles apparaissent aux environs des grandes villes qui sont des débouchés pour des légumes frais et les pommes de terre precoces. En Hongrie centrale et orientale une orientation la plus intensive est: mais avec froment /I_4 +E_2tv/, liée surtout avec l'elevage des porcins.

Pour terminer, il faudrait souligner que malgré une grande quantité des orientations de l'utilisation des terres arables et leur répartition en mosaque de la mer Baltique jusqu'à la plaine pannonienne, on y observe de certaines régularités dans le domaine des traits d'organisation de l'agriculture.

En Pologne, la répartition des orientations de l'utilisation des terres arables est visiblement liée aux conditions naturelles, surtout pédologiques et à la structure des exploitations individuelles, ainsi qu'à la densité de la population agricole.

En Tchécoslovaquie, la répartition en mosaïque des orientations constitue surtout un reflet, à côté des conditions naturelles, du relief et du climat, de l'influence de la politique d'Etat tendant à specialiser l'économie agricole.

En Hongrie, où les conditions naturelles sont les plus favorables, l'organisation de l'économie agricole manifeste les traits caractéristiques pour l'agriculture de type pannoncen.

Les relations entre les orientations de l'utilisation des terres arables et leur répartition d'une part et des conditions naturelles, économiques et la structure agraire du territoire examiné de l'autre part - leur analyse approfondie et leur motivation, demandent encore de travaux ultérieurs.

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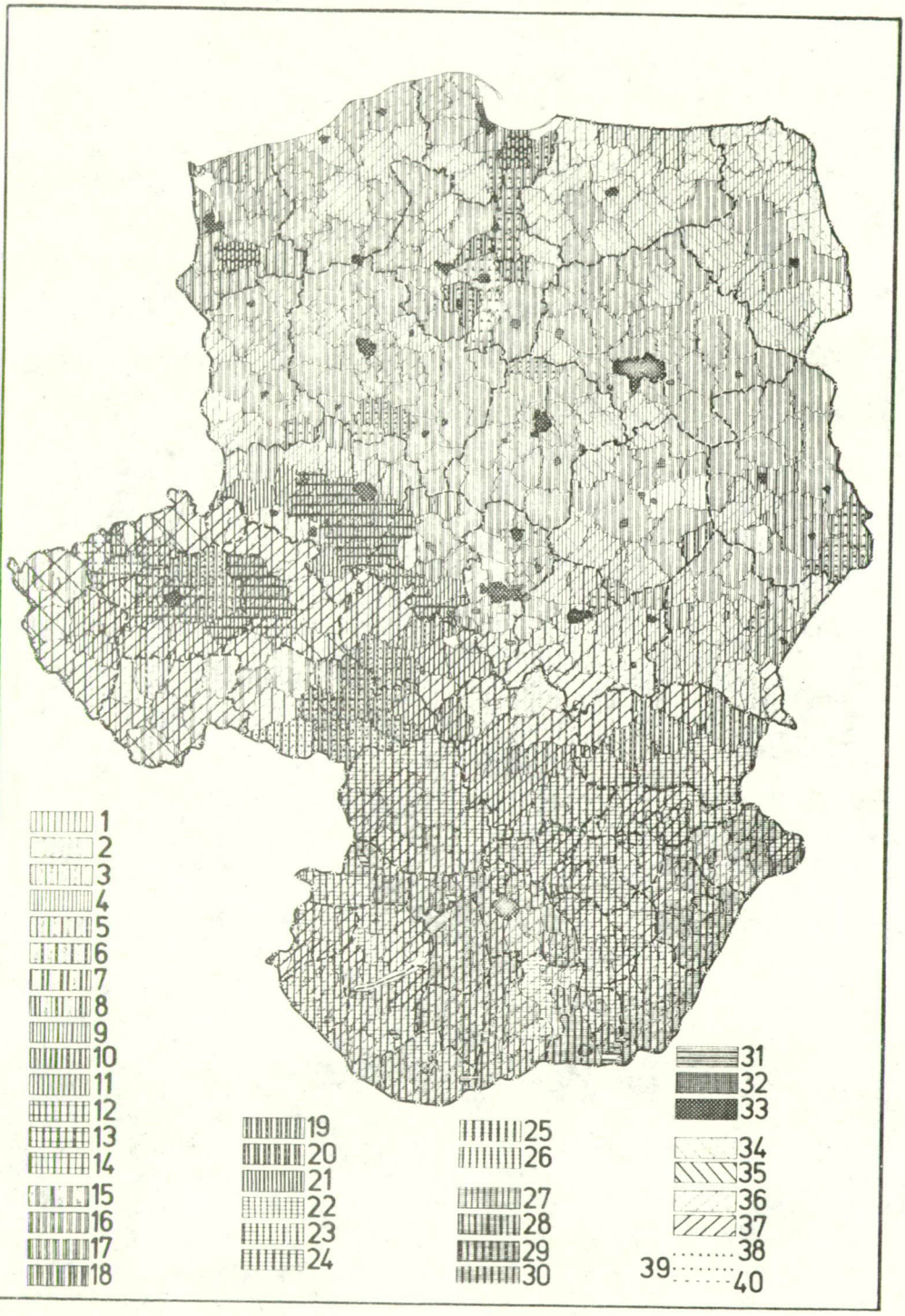
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PROBLEMS OF TRANSFORMATION OF AGRICULTURAL SETTLEMENS: THE CROFTING SETTLEMENS OF THE OUTER HEBRIDES, SCOTLAND

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In most of north-west Scotland, the islands of the Hebrides and of Orkney and Shetland, the predominant agricultural settlement unit is the croft, small-holdings rented at less than 50 /$ 120/ per annum, the vast majority of which are arranged in crofting townships, groups of from three to over one hundred crofts. Each croft consists of an area of arable and permanent pasture usually in a rectangular lot now fenced off from its neighbours: a majority of crofts may consist of more than one plot of land separated by other crofts, and almost all crofts have rights in common grazings shared by all crofts in the township: grazing rights /soumings/ are usually expressed by the number of breeding cows, young cattle, ewes and other sheep which may be pastured by each tenant. In a few areas, there are also rights in common arable land. Figure I, the crofting township of Liniclett, Benbecula, illustrates the spatial layout of crofting.

Table I

	Number of Crofts /1970/[1]	Working Units /1970/[2]	Acreage of Common Pastures /1963/[3]	Acreage of Crops and Grass /1963/[3]
Argyll				
Mainland	626	500	48,000	11,995
Islands	560	455		
Caithness	1,165	781	12,400	30,538
Inverness-shire				
Mainland	978	801	438,200	58,790
Islands	4,247	3,955		
Orkney	615	494	-	17,155
Ross and Cromarty				
Mainland	1,963	1,593	454,300	28,948
Island of Lewis	3,593	3,431		
Sutherland	1,963	1,511	259,000	14,903
Shetland	2,805	2,019	182,000	15,181
Total	18,539	15,540	1,344,400	177,510

Table I shows that there are some 19,000 registered crofts; Figure II brings out the distribution of the crofting population in 1951 apart from the Orkney and Shetland Islands: the basic distribution has not significantly changed since. Sixty-four per cent of the crofts are located on islands: the bulk of the remainder are distributed along the barren coastal peninsulas of the western and northern mainland coasts, and the others are located on the less attractive soils of the valley benches of the eastern river valleys and the upland cores among the restricted lowlands.

In the early nineteenth century, certain multiple-tenancy farms and farms held by tacksmen /leaseholders/ with sub-tenants were either let to single tenants or the arble land and some pasture was lotted in unenclosed small-holdings which shared the rough pasture of the former farms as common grazings; this was the origin of the crofting townships. As the remaining tacksmen's leases ended in the early 19th century, some of their farms were let to lowland sheep graziers and the sub-tenants were cleared from the farms. The better farms of the inland straths were cleared and some of the former sub-tenants were given lots round the coast where they would be able to fish; others were given lots on parts of the common pastures of the crofting townships, and many moved to the lowlands of Scotland or emigrated to North America and Australia and New Zealand.

Vigorous population growth in the North-west Highlands and Islands led to congestion on the small crofts, and the Crofters Act of 1886 gave all crofters security of tenure, the rights to bequeath their holdings and to receive compensation for improvements on renouncing their tenancy. In 1887, the Crofters Commission was formed: grazing regulations for common pastures were drawn up and fair rents determined. The above rights and the low level of rents have resulted in a rigid form of agrarian structure where there is no incentive to give up land even if the tenant is not using it. Attempts were made to relieve congestion by making more land available to crofters: the Royal Commission /Highlands and Islands/ of 1892 identified areas of land, usually farms, suitable for land settlement; over 2,600 new crofts were created and over 5,000 existing crofts enlarged between 1897 and 1939, adding over 47,000 acres /19,000 hectares/ of arable and over 630,000 acres /250,000 hectares/ of pasture to the crofting lands[4]. The original

Crofters Commission was merged with the Departmen of Agriculture for Scotland in 1913 but revived in 1955 after the Commission of Enquiry into Crofting Conditions of 1954 had reported. The main object of this paper is to examine the extent and mechanism of change in the Crofting area since 1955.

Between 1955 and 1959, the Crofters Commission had registered 19,800 crofts but, by 1970, this number declined to 18,539[5]. In 1963, the area under crofting tenure was estimated by the Commission to be 1,394,400 acres /560,000 hectares/, of which 9 per cent was in crops and grass, 21 per cent in rough grazings and 70 per cent in crofters' common grazings of which there were 751 in 1970[6]. The low percentage in crops and grass reflects the poverty of the Highland and Island environment for agriculture; areas of cultivable land are very limited in the Highlands and Islands and the crofters generally have the poorer land.

The number of registered crofts, however, is a less significant statistic than the number of working units: a working unit may be defined as all the land tenanted or sub-let and worked by one individual. Many crofters rent more than one croft, and their wives or sons may also be tenants of other crofts. Since 1965, the Crofters Commission have published statistics of working units and in 1970, 15,540 such units were identified[7], although this is thought to be an over-estimate as it is based on separate agricultural returns made by crofters and does not take into account "informal" sub-letting.

These working units have been classified by the Crofters Commission in two ways. In 1966 they were classified according to acreage of crops and grass.

Table II

Working Units Classified According to Acreage in Crops and Grass[8]

Acreage of Crops and Grass	Number	%
None	479	3
Up to 5 acres /2.02/	6,847	46
Over 5 and up to 10 acres /4.05/	3,607	24
Over 10 and up to 20 acres /8.09/	2,162	15
Over 20 and up to 30 acres /12.14/	768	5
Over 30 acres /12.14/	1,077	7
	14,940	100

Table II shows that half of the working units have areas of crops and grass of less than 5 acres /2 hectares/ and that about three-quarters have areas of crops and grass of less than 10 acres /4 hectares/. Secondly, the Crofters Commission have classified the working units according to size measured in standard man-days required to work the holdings. In 1970, 86 per cent of the working units provided less than 100 days employment and only 3 per cent over 275 man days employment, that is, only 3 per cent are units requiring more than one man's fulltime attention and effort[9].

Raw statistics such as those quoted above make it abundantly clear that the vast majority of crofts are uneconomic agricultural units. No overall statistics are available, however, of the degree to which the tenants of crofts depend on agriculture for their livelihood. Surveys in the Outer Hebrides by the Department of Geography, University of Glasgow, from 1956-1960, however,

indicate that, at that period, less than 12 per cent of the resident male population of working age /15-64/ were full-time crofters, that is crofters without any ancillary occupation, but a resurvey of the Uists in 1968 by the author on behalf of the Highlands and Islands Development Board indicated that the percentage of full-time crofters in Benbecula and North Uist had fallen considerably since 1956 and 1958 respectively: /see Table VII/.

Table III

Crofters by Age Groups and Ancillary Employment
1968 North Uist

	15-19	20-29	30-44	45-64	65+
Full-time Crofter	5	9	17	69	47
Crofter with Regular Employment	0	11	35	38	4
Crofter with Periodec Employment	2	9	16	17	2
Benbecula					
Full-time Crofter	4	2	9	21	18
Crofter with Regular Employment	0	3	20	35	0
Crofter with Periodic Employment	0	0	7	10	17

It is evident from Table III that in the Uists at least, very few crofters are under 30 years of age. Overall statistics show that the average age of persons succeeding to tenancies of crofts from 1966-70 was 51 years of age[10]: this underlines the fact that the younger members of the crofting communities find it difficult to acquire crofts.

Thus tenancy as opposed to ownership, small size of agricultural units, and participation in full-time agriculture by middle-aged and elderly persons are three dominant characteristics of crofting agriculture.

Lack of manufacturing employment has led to a very selective migration of the younger members of families in search of training and England: in the seven Crofting Counties only 11 per cent of the working population are engaged in manufacturing employment as opposed to the Scottish average of 45 per cent. Further, with consistent migration, some tenancies are renounced and elderly tenants who are unable to work their crofts and whose families have migrated sub-let them formally or informally. Figure I shows the fragmented structure of holdings brought about by succession and sub-letting; it is rarely possible to group units in a consolidated fashion, as succession to tenancy and opportunity to obtain sub-lets is often by chance. The young, keen and able crofter who desires to work more land is often frustrated by simply being unable to obtain it.

The basic problem of the crofting system is that its rigid structure prevents maximum use of the land resources available. Since 1955, the Crofters Commission, in their remit to reorganise, develop, and regulate crofting have concentrated their efforts on encouraging the keen crofter to develop the potential of the available land. Their efforts can be grouped under five headings: reorganisation, apportionment of common land, pasture improvement, infrastructure development and encouragement of improved agricultural practice.

Reorganisation

In the Crofters Act of 1955, provision was made for reorganisation of townships where there were vacant crofts and scattered units or where the township was in "a state of disorganisation or decay", in order to create more economic units. The procedures are similar to those of

Remembrement Rurale in France and similar provisions in other European countries aimed at consolidating fragmented farms, but have been little used by the crofting communities. Figure III shows one successful effort at Howbeg in South Uist which consolidated seven crofts from the original fifteen and lotted the common machair in six fixed lots from run-rig. Few similar schemes have been attempted: failure to achieve agreement among the tenants of the township is usually the reason for lack of reorganisation[11]. In only ten crofting townships have reorganisation schemes, formal or informal, been carried out.

If reorganisation of townships has been abandoned, the Crofters Commission have been able to make land available to the active crofter in other ways. Firstly, absentee tenants, often resident in the cities, have been persuaded to renounce their tenancies. Since 1961, the average number of new cases of absenteeism per year has been 161, but in only eleven cases on average has the Commission had to issue an order terminating tenancies[12]. These crofts have mostly been added to existing crofts.

Another method of enlarging a croft unit is to lease another croft. Before 1955, an absentee or elderly crofter sub-let his land to an active crofter on an informal basis. The lessee rarely invested any effort in such land as the let could be terminated at any time and much of the land sub-let deteriorated. In 1961, the Crofters Commission were empowered to register such sub-lets and, by 1970, 1,444 contracts of sub-let had been registered[13], although it is known that "informal" sub-lets still persist. The 1955 Act also empowered the Commission to encourage the giving up of croft land by elderly crofters to make it available to their more active neighbours: elderly tenants may be granted a feu charter for a quarter acre /0.1 hectares/ of their land and their house but from 1965 to 1970, only 103 crofts, comprising 1,193 acres /483 hectares/[14] were made available for the

enlargement of existing units in this way. This scheme is less attractive than sub-letting land as the crofter may pay more in feu duty than he formerly did in rent.

From crofters assigning or bequeathing their tenancies, or absentees or others renouncing tenancies, some 2,021 crofts have been enlarged and the area added to existing crofts has been 38,927 acres /15,750 hectares/.

Apportionment of Common Land

Figure IV illustrates an example of the apportionment of common land. The majority of the crofts in Sollas, North Uist, were laid out in 1899 in two pieces to take account of the different qualities of the land. The sandy machair land was worked in run-rig; up to six blocks of land, each of approximately six acres /2.4 hectares/ were annually cultivated in linear strips of half an acre /0.2 hectares/ for two to three years and then fallowed while other blocks were brought into cultivation.

Each time a block was brought into cultivation, lots were drawn for each strip: thus there was little incentive to improve the fertility of the machair blocks. In 1960, the cultivable part of the machair was lotted and each croft was allocated a consolidated block which was subsequently fenced. This process of apportionment has resulted in a greater intensification of cultivation on the machair; on one machair apportionment, 13 acres /5.3 hectares/ are now cultivated annually instead of the 3 acres /1.2 hectares/ under the run-rig system, and the grain crop, mixed oats and rye, is undersown with a grass mixture; the grass in ploughed in during the spring ploughing thus raising the humus content of the soil. Thus individualisation of former common arable has led to greater production. Common arable machair land

is virtually confined to the Southern Hebrides and there is a gradual movement to apportion these areas, held back in some townships by the older tenants being unwilling to depart from their traditional practices: agreement is required to enable apportionment to be carried out, and where older tenants are in the majority, this is not always forthcoming.

Pasture Improvement

Apportionment of parts of common grazings is more frequent, and, from 1955 to 1970, some 30,000 acres /12,000 hectares/ of former common land has been apportioned to individual crofters in the seven Crofting Counties[15]. Any crofter tenant may apply to the Crofters Commission for an apportionement of part of the grazing, but this has to be agreed by the other shareholders. Many of these apportionments are on an individual basis and are really an enlargement of crofts, but in Sollas /Fig. IV/, the whole township participated and the apportionments were allocated as far as possible to be near to the "parent" crofts. After fencing, the apportionements are dressed with shell sand from the beaches and artificial fertilizers, and grass mixtures developed by the North of Scotland College of Agriculture are scattered on the surface, resulting in significant pasture improvement. Financial assistance is available for such schemes and between 1956 and 1970 some 36,000 acres have been improved by surface seeding, some 27,000 acres /10,900 hectares/ by individual crofters and some 9,000 acres /3,600 hectares/ by township schemes. Individual apportionments have been much more successful than township schemes where whole townships have improved large areas: for, after the initial improvement has been made, there may be unwillingness on the part of some members of the township to contribute financially to the application of fertilizer necessary for the maintenance of the improved areas.

In some areas, land reclamation of apportionments of hill pastures has also been carried out where ploughing has been necessary before reseeding, and a higher grant is available in these cases.

Extension of working units by apportionments of common land has not only enabled enthusiastic crofters to increase their livestock numbers but the improved grassland has raised the quality of the stock, and reduced the age of the stock at sale. This is particularly evident in sheep management: the traditional practice was to graze wedders on the common pastures for three years before they were large enough to sell, and a 50 per cent death rate was quite common during this period, given the dangers of the terrain. Now the wedder lambs are fed on the reseeded pastures from April to October and sold for prices equivalent to or higher than those obtained for three-year old wedders traditionally raised.

Infrastructure Development

Over 2.9M /$ 7.0M/ has been paid out in improvement grants between 1955 and 1970, 53 per cent for fencing /enclosure/ of crofts and apportionments, 22 per cent for land improvement. A further 12 per cent has been paid to improve amenities /roads, water supplies and cattle grids /since 1965 only/, 8 per cent for drainage improvements, and 5 per cent on farm equipment /pit silos, cattle shelters, fanks and dippers and electrical equipment/[16].

Improved Agricultural Practice

Apart from these efforts to increase the size of units and improve the pastures and infrastructure, a more general improvement in arable agricultural practice has been achieved by making award of full agricultural subsidies conditional on one-third of the area cropped in any year being undersown with grass. In 1970, 19,740 acres /8,000 hectares/ of tillage and

19,920 acres /8,000 hectares/ of grass qualified for these grants and some 3,757 claims were paid. Headage payments based on livestock numbers benefit some 3,000 other crofters[17].

These figures suggest that under 7,000 out of some 15,000 working units actually claim agricultural subsidies and one can draw the conclusion that less then 7,000 crofters are really active.

The Effects of Efforts to Transform Crofting Agriculture

From detailed studies of Benbecula and North Uist, the following data illustrate the type of changes that have taken place since 1955.

Table IV

Breeding Cows per Working Unit
/figures are in percentages/

	North Uist		Benbecula	
Number of Breeding Cows	1957-9	1968	1956	1968
1	30	26	15	20
2	34	20	38	15
3	15	12	14	18
4	8	6	14	15
5	6	6	13	11
6 and over	7	30	6	21
Maximum number of breeding cows	20	30	9	16
Units with sheep only /number/	33	36	21	29
Total Units	351	297	171	150

Table V

Stock Numbers

Benbecula /Crofts/

	Breeding Cows	Total Cattle	Ewes	Total Sheep
1956	430	1,148	4,362	7,545
1968	678	1,930	3,631	7,135

The number of breeding cows are the most significant index to change in the level of agriculture as most of the cash income is earned from sales of calves and store cattle: there is a smaller element of income from the sale of wool and wedder lambs. From Table IV, it is clear that since 1956-9 there has been an increase in the cattle stocks held by the more intensive working units: in 1956, only 6 per cent of these units had at least 6 breeding cows: by 1968, 20 per cent of the units had 6 or more. Table V shows that the total number of breeding cattle in Benbecula had increased by almost 70 per cent form 1956 to 1968, in spite of the fact that the number of working units had decreased by some 12 per cent during this period.

Reference to data from individual townships given in Table VI makes it possible to attempt to estimate the influence of the various measures to develop crofting adopted by the Crofters Commission.

In Howbeg /Fig. III/, the reorganisation scheme has enabled cattle stocks to be increased: as little reseeding has taken place, the structural change has probable been significant.

Table VI

Changes in Agriculture in Selected Townships

		Breeding Units	Total Cows	Total Cattle	Ewes	Total Sheep	Resident Population
Howbeg	1957	7	20	44	150	131	21
/South Uist/	1968	6	23	72	121	219	18
Locheeport	1960	23	35	83	530	1,783	67
/North Uist/	1968	22	23	est.54	667	2,243 est.	51
Sollas	1955	9	40	est.135	est.150	476	60
/North Uist/	1958	9	63	204	237	630	54
	1964	9	70	228	300	750	48
	1968	8	84	277	400	est.1,000	49

Locheeport is one of the townships situated on the east coast of North Uist: pockets of stony drift constitute the agricultural land and there is none of the more easily worked, level, sandy machair land which girdles the west coast of the Southern Hebrides. The population is ageing rapidly and there has been little or no reseeding carried out. The sheep stock has increased - this is the one method of increasing income without much effort for crofters' sheep are normally infrequently tended. The age structure in this township and the low potential of the croft land are such that there is little incentive to take advantage of the schemes of the Crofters Commission.

Sollas, on the other hand, illustrates what progress can be made: since 1955 both cattle and sheep stocks have doubled. Here both structural changes, shown on Fig. IV in the form of apportionement of common land, and pasture improvement have formed the basis of progress. Individual

crofters have fenced their crofts and apportionments: one cattle shelter has been built and the township have taken advantage of grants to improve one township road and to build a fank where stock could more easily be loaded into lorries. But there is another more significant factor - the aid of the Advisory Service of the North of Scotland College of Agriculture which provides free help and advice to farmers and crofters alike. It was College Adviser, the late Donald Seaton, who encouraged the Sollas crofters to apply for apportionments and to improve the pastures; he also bought, on behalf of the keener crofters, breeding cows and rams from the Scottish mainland to improve the cattle and sheep stocks. It must also be said that the crofters of Sollas are keen agriculturalists and enterprising men and three of them are under 35 years of age.

Although there are difficulties in assigning credit to the various schemes in developing crofting agriculture, their impact has been to afford the 7,000 crofters who take advantage of the schemes a chance to improve if not to transform their holdings althoug the present legal framework of crofting does not permit radical changes to be made.

Table VII

Occupation Classes of Men /15-64/
/figures are in percentages/

	North Uist		Benbecula	
	1958	1968	1956	1968
Full-time Crofters	34	24	22	16
Crofters with Regular Employment	22	20	34	25
Crofters with Periodic Employment	21	11	17	7
Non-Crofting	23	45	27	52
	100	100	100	100

It is difficult to estimate the effect of lack of opportunity for radical changes, but as Table VII shows, an increasing number of the men in Benbecula and North Uist are abandoning crofting, even on a part-time basis, as a source of a livelihood.

New Proposals for the Transformation of Crofting Agriculture

It has been recognised for a number of years that transformation of these crofting communities was not being radically achieved by the Crofters Acts of 1955 and 1961. While it is true that croft units have been enlarged by the addition of some 39,000 acres /15,750 hectares/ from crofts given up, some 30,000 acres /12,000 hectars/ of land have been added to crofts by apportionements from common land, some 36,000 /14,500 hectares/ of pasture have been improved and in spite of improved agricultural techniques, crofting continues its overall decline basically because of the unsatisfactory agricultural structure where land is not always available to the keen crofter wishing to expand.

In 1968 and 1969[18] the Crofters Commission made certain significant proposals to the Secretary of State for Scotland which could radically transform crofting agriculture and rural settlement patterns designed "to give crofters incentives to accept changes in land use where these are necessary and to engage themselves in non-agricultural developments on their holdings". These new proposals are designed to replace crofter tenancy by owner-occupancy by the device of continuing to pay the rent as an annuity for a period to be agreed, and to transfer ownership of the common grazings to the township to be held in trust and administered by the Grazings Committee.

Owner-occupancy would enable crofters to develop their land for purposes other than agriculture, for example tourist development, to build additional houses for their married sons and daughters on their crofts and to borrow capital for development on the security of their holdings. The Common Grazing Committees could also develop or rent, to a developer, the assets of the hill land for caravan or camping sites and lease sporting rights, such as brown trout fishing, thereby gaining additional income for their communities. At present, none of these developments are possible; landlords can and do prevent non-agricultural developments and crofters can only claim compensation for agricultural improvements if they leave their crofts. Under the new proposals, as owner-occupiers, crofters could also dispose of their lands and houses at much more favourable terms. It is feared, however, that many holdings might be disposed of as summer cottages for urban dwellers: the Commission point out that the 1967 Agricultural Act makes provision for the establishment of Rural Development Boards to meet such problems and the Highlands and Islands Development Board can be authorised to exercise such functions and even, for example, acquire land in danger of going out of agricultural use to effect "amalgamation and reshaping of agricultural units".

These proposals recognise the fact that there is insufficient croft land to establish or maintain a satisfactory agricultural structure, and that there are an increasing number of persons in crofting areas who no longer wish to cultivate the land. If owner-occupancy was implemented, the rigid agrarian structure would be dissolved and crofting could begin to evolve.

Conclusion

The basic problem of crofting is that much of the land is tenanted by persons no longer active in agriculture, and that the younger, active crofter finds it difficult or impossible to acquire a sufficiently large agricultural unit. The efforts of the Crofters Commission since 1955 have allowed limited expansion by land apportionements but the implementation of the proposals for owner-occupancy would encourage those no longer wishing to work the land to dispose of their holdings, thus creating a pool of land for the expansion of working units. The improvements in crops, stock and pastures achieved in the last fifteen years would continue and probably increase under owner-occupancy.

The other basic problem of the Highlands and Islands of Scotland is the lack of manufacturing employment. For two hundred years no attempt to develop stable manufacturing employment has succeeded. At present most of the non-crofting employment is in the tertiary sector and the working population of Benbecula and North Uist have demonstrated over the past fifteen years a desire for employment alternative to crofting. The provision of manufacturing or processing employment has proved difficult, but until it is developed, the evolution of a more balanced community seems unlikely.

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EVOLUTION DE L'HABITAT RURAL DANS UNE RÉGION URBANISÉE DE SUISSE OCCIDENTALE /CANTON DE NEUCHÂTEL/

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L'habitat rural de la région étudiée /Jura central suisse/ subit actuellement des modifications qui affectent à la fois la conception architecturale de la maison rurale elle-même et le mode de répartition des fermes.

I Modifications de la conception architecturale de la maison rurale du Jura central suisse

Les modifications que nous analyserons sont une illustration de la pensée du géographe français Demangeon que nous voudrions placer en exergue:

> "La personnalité foncière de l'habitation rurale ne se compose pas de ces éléments qui changent et qui passent; elle émane surtout de l'ordonnance interne des bâtiments qui est née de besoins agricoles. La maison du paysan donne la solution d'un problème vital qui est de savoir comment s'établiront les rapports réciproques des hommes, des bêtes et des biens." /Demangeon A., Problèmes de géographie humaine, Paris, Colin, 1952, p. 266/

Divers facteurs influencent la forme du principal outil du paysan qu'est la maison rurale: facteurs naturels, économiques, sociaux, techniques et psychologiques. L'incidence de l'économie et de la technique agricoles sur l'architecture rurale apparaît actuellement prépondérante. La chaîne jurassienne est traditionnellement comprise dans la zone d'extension de la maison-bloc. On peut recenser deux sous-types de cette maison-bloc dans le Jura central suisse: la maison vigneronne et la maison paysanne.

1. La maison vigneronne

La maison du citiculteur des rives des lacs subjurassiens est une maison-bloc en hauteur selon la terminologie de Demangeon. Le premier étage est entièrement réservé au logement /de même que le deuxième étage là où il existe/. Les locaux vinicoles n'occupent guère que le rez-de-chaussée /pressoir et cave à vin/ et parfois le sous-sol. Les locaux professionnels prennent ainsi peu de place. Il en découle que les maisons vigneronnes peuvent être contiguës sans inconvénients et que cette contiguïté même donne un caractère urbain aux villages viticoles. Il s'ensuit également que la maison vigneronne du Jura suisse est encore sensiblement la même aujourd'hui qu'il y a trois ou quatre siècles: les villages viticoles sont des joyaux d'architecture du XVIe, XVIIe ou du XVIIIe siècle qui ont conservé leur aspect et leur fonction viticoles.

Seuls un accroissement récent des dimensions des domaines viticoles ainsi que des changements de techniques vinicoles ont rendu les anciens locaux trop exigus. La vinification s'effectue de plus en plus dans des caves de grande dimension aménagées spécialement à cet effet /caves collectives ou caves privées/. Comme il s agit de construction séparées, la maison vigneronne elle-même n'en est que peu modifiée.

2. La maison paysanne

La conception de la maison du polyculteur-éleveur est plus étroitemenet liée à sa fonction agricole que ne l'est celle du viticulteur; elle est "outil" dans une plus forte mesure et comme telle, la maison du paysan matérialise une des adéquations les plus parfaites entre l'architecture et la fonction. Contrairement à la maison vigneronne, elle s'est modifiée de façon si fondamentale depuis trois ou quatre siecles qu on peut distinguer plusieurs sous-types dans le Jura central suisse; ce sont dans l'ordre chronologique la ferme-pignon, la ferme dite "maltournée" et la ferme dissociée qui est la ferme actuelle.

a. La ferme-pignon est la ferme du XVIe, XVIIe ou XVIIIe siècle; elle doit son nom à sa façade principale qui est une façade pignon. Le faîte du toit a par conséquent une orientation nord-ouest/sud-est. Cette ferme est bâtie sur un plan presque carré d'une douzaine de mètres de côté; sa tripartition est généralement longitudinale, le logement et l'étable étant situés de part et d'autre de la remise. La grange occupe le premier étage.

La ferme-pignon est particulièrement bien adaptée au milieu naturel jurassien. On a volontairement construit la ferme au point de concact entre les fonds de vallée en cultures et le flanc de la montagne en pâturages, concrétisant ainsi la symbiose agriculture-élevage. Cette localisation au point de rupture de pente facilite par ailleurs l'engrangement des récoltes: la ferme étant adossée a la montagne, on accéde à la grange par un plan incliné d'une pente relativement faible. Enfin, le toit répond admirablement a la double nécessité d'assurer une bonne isolation thermique en hiver

et l'approvisionnement en eau des bêtes et des gens. Rappelons en effet que les températures inférieures à - 10° C ne sont pas rares dans le Jura qui est par ailleurs une région karstique à circulation souterraine des eaux. L'inclinaison favorable des pans du toit permet de retenir une épaisse couche de neige qui sert d'isolation en hiver et qui remplit la citerne au printemps.

La ferme-pignon, parfaitement adaptée à la petite exploitation d'une douzaine de bovins, s'est trouvée trop exiguë pour abriter les récoltes plus abondantes et le bétail plus nombreux issus de la révolution fourragère du XIXe siecle. Accolée à la montagne, la ferme-pignon est difficilement extensible, le faîte de son toit étant perpendiculaire aux courbes de niveau. Pour répondre à ce besoin d'un accroissemenet du volume de la ferme, les constructeurs ont fait subir une rotation de 90° au faîte de son toit. La ferme du XIXe siècle a donc été construite selon un axe /marqué par le faite/ parallele aux courbes de niveau. Elle est une "maison-bloc à éléments transversaux" appelée "maltournée" par les agriculteurs jurassiens qui la comparent à la ferme-pignon classique.

b. La ferme maltournée a un volume considérable, qui atteint ou dépasse le double de celui de la ferme-pignon: sa base est constituée par un vaste rectangle de quelque trente mètres de longueur et quinze mètres de largeur; la grange a pris des dimensions monumentales puisqu'elle occupe les premier et deuxième étages; l'étable peut accueillir une douzaine de vaches au lieu de six ou huit dans la ferme-pignon. D'un volume appréciable, elle peut encore être allongée sans engagement

de frais disproportionnés à cause de son orientation parallèle aux courbes de niveau. Cette grande faculté d adaptation explique son maintien jusqu'à la Deuxième Guerre mondiale. Depuis 1945, les agriculteurs se plaignent au contraire de son inadaptation; c'est dire que la maison paysanne du Jura suisse traverse actuellement une phase de transition où l'on peut cependant distinguer quelques conceptions majeures: de façon générale, la maison-bloc est abandonnée au profit de ce que nous appellerons la maison dissociée.

c. La maison dissociée, en faveur actuellement, ne constitue pas un retour à la maison-cour que le Jura suisse n'a d'ailleurs jamais connue. Elle résulte de la spécialisation croissante des bâtiments de l'exploitation agricole. Les causes de cet éclatement de la ferme sont multiples: exode agricole, avec l'agrandissement des exploitations et la réduction de la main-d'oeuvre qu'il provoque, accroissement des rendements, désir de confort.

Le coût de la construction étant relativement élevé en Suisse, l'agriculteur se contentera le plus souvent d édifier un ou plusieurs bâtiments annexes tout en conservant l'ancienne ferme.

Le "rural" c'est-à-dire un bâtiment comprenant étable et fenil, est l'adjonction la plus fréquente. Il répond à un accroissement du cheptel /vaches laitières ou bovins d'engraissement/. L'élevage et l'engraissement porcins se pratiquent de plus en plus fréquemment dans des bâtiments spécialement conçus à cet effet. L'accroissement de la demande urbaine de viande, mais aussi les exigences de qualité, qu'elle implique, les améliorations de la race porcine réalisées par les, recherches zootechniques, le manque de main-d'

œuvre, tous ces facteurs incitent l'agriculteur soit à abandonner l'élevage du porc soit au contraire à le produire sur une grande échelle et de façon quasi automatisée. Les halles d'engraissement sont équipées de silos de farines fourragères comprenant un système d'alimentation déclenché par un mouvement d'horlogerie et de répartition des aliments par pesées automatiques; l'évacuation des déjections se fait grâce à des claies; enfin, le local est climatisé.

Le poulailler constituait une annexe traditionelle de la maison-bloc. Il tend actuellement à prendre des dimensions industrielles ou à disparaître. La production fermière d'œufs et de poulets n'est plus rentable sauf pour l'autoconsommation. Seuls ont conservé une production pour la vente les éleveurs qui ont construit des halles d'engraissement de poulets ou des halles de ponte automatisées pouvant abriter plusieurs milliers de volatiles.

Certains agriculteurs n'ont pas à faire les frais de constructions neuves. Ils se contentent d'utiliser les locaux rendus vacants par l'exode agricole et ne particulier par la retraite d'un paysan sans successeur. Nombreaux sont les agriculteurs qui louent les locaux d'une ou de deux anciennes fermes. Il se crée ainsi un type particulier de maison rurale dissociée, souvent peu pratique, mais que le coût prohibitif des constructions nouvelles impose fréquemment.

C'est en effet plus de 500 000 francs suisses qu'il faut investir aujourd'hui pour la construction d'une ferme familiale complète comprenant "rural" et maison d'habitation. Dans ces conditions, seuls les agriculteurs disposant de fonds extra-agricoles peuvent construire une ferme entièrement neuve. Ces fonds sont constitués soit par des ventes

de terrain à bâtir, soit, le plus souvent, par des subsides publics, accordés dans le cadre de remembrements parcellaires. Les subsides publics, qui couvrent approximativement les deux tiers des frais de construction, ont permis un véritable renouvellemenet du patrimoine immobilier rural. Une nouvelle architecture rurale est en train de naître.

Les fermes construites actuellement dans le Jura central suisse sont toutes des maisons rurales dissociées où la maison d'habitation est séparée des batiments d'exploitation.

La maison d'habitation n'a plus guère de caractère rural; les pièces sont aussi nombreuses, aussi spacieuses et aussi claires que celles des appartements urbains de standing moyen. La maison d'habitation de l'agriculteur ne se distingue plus, par son aspect extérieur, d'une villa familiale citadine. Les éléments caractéristiques de la ferme ne doivent par conséquent plus être cherchés dans la maison d'habitation mais uniquement dans les bâtiments d'exploitation et en particulier dans le "rural".

Le type d'étable-grange le plus en faveur actuellement dans le Jura central suisse est celui que nous dénommerons "rural" à éléments juxtaposés en gradins. Le bâtiment est un vaste rez-de-chaussée à tripartition longitudinale. L'orientation parallèle aux courbes de niveau est de règle; la pente, utilisée judicieusement, permet la construction de trois paliers qui consituent l'aire de déchargement des récoltes, le fenil et l'étable. Cette ferme est conçue de façon a limiter les dépenses de temps et d'énergie: les chars de récolte pénètrent dans l'aire de déchargement à l'une des extrémités du palier supérieur, en ressortent à l'autre extrémité sans

plan incliné; le déchargement des récoltes se fait par simple déversement sur le deuxième palier, le fenil situé en contrebas; le monte-charge indispensable dans les fermes maltournées est superflu dans le cas de la ferme en gradins. L'alimentation du bétail s'effectue également par déversement des fourrages dans la crèche surbaissée. De l'engrangement à la consommation, tout a été conçu dans la ferme jurassienne contemporaine pour éviter d'élever le fourrage, et pour réduire ainsi le temps nécessaire à l'affouragement. Ce même souci d'une économie de main-d'oeuvre incite certains agriculteurs à préférer la stabulation libre avec salle de traite à la stabulation entravée traditionnelle. L'utilisation d'une toiture en amiante-ciment au lieu de tuiles permet par ailleurs des économies financières appréciables.

En se dissociant, et en se spécialisant, la ferme du Jura central suisse adopte certains traits de l'architecture rurale internationale telle qu'on la connaît en Suède, en Allemagne, en France ou aux Etats-Unis. Existe-t-il encore, dans ces conditions, un dénominateur commun entre la ferme contemporaine et la ferme-pignon du XVIIe siècle? Certainement pas dans la forme, ni dans le matériau, mais essentiellement dans les tentatives d'adéquation entre l'architecture et la fonction agricole.

II. Modification du mode de répartition des fermes

Le Jura plissé connaît les deux types d'habitat: habitat groupé dans les vallées colonisées à l'époque gallo-romaine ou au haut moyen-âge; habitat dispersé sur les anticlinaux ou sur les hauts plateaux de colonisation récente.

Les finages d'habitat groupé sont évidemment les plus morcelés et ceux où les remembrements sont les plus fréquents.

Nous avons vu que le remembrement était la cause principale du renouvellement de la maison rurale; il est également un facteur essentiel de modification du mode de répartition de l'habitat rural. En effet les remembrements permettent fréquemment à quelques agriculteurs trop à l'étroit au village de s'installer sur le pourtour du finage; on assiste à une dispersion de l'habitat rural selon en principe qui veut que la ferme soit au milieu des terre. Certains villages urbanisés ne comptent plus aucune ferme, les agriculteurs étant installés dans la zone agricole périphérique. Il est ainsi possible, grâce aux remembrements, d'effectuer un aménagement régional distinguant zones d'habitation, zones industrielles et zones agricoles. Véritable opération de restructuration foncière, le remembrement permet de remettre un peu d'ordre dans l'utilisation anarchique du sol. En l'absence d'une législation foncière adéquate, le remembrement constitue même le moyen le plus sûr de garantir le maintien des zones agricoles, face à une urbanisation envahissante. Selon la législation suisse, l'affectation des terres agricoles remembrées ne peut en effet pas être modifiée dans les vingt ans qui suivent le remembrement. Les finages remembrés et dans lesquels de nouvelles fermes ont été construites constituent les zones agricoles les plus durables.

L'habitat rural du Jura suisse est soumis actuellement à de fortes influences extra-agricoles et extrarégionales qui modifient la forme de la maison ruruale de même que la répartition des fermes; l'habitat rural ne peut par conséquent plus être étudié isolément, comme un élément de folklore, mais bien plutôt en tenant compte des influences économiques, agronomiques, urbaines, parfois extranationales sur l'architecture rurale comme sur le mode de répartition des fermes.

MICRO-SCALE AGRICULTURAL-GEOGRAPHICAL STUDIES AS A BASIS FOR TERRITORY ANALYSIS AND PROGRAMMING AGRICULTURAL PROGRESS

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Increasing production of grain and forage which is a basis of further inrease of animal output is the first and foremost task of Polish agriculture. As land resources are limited, the effective utilization ofevery hectare of agricultural land and of production means supplied to agriculture by industry are roads leading to this goal. Outlays for agriculture will only bring the expected production effects: increased crops of basic plants, growth of animal population and greater effects of stockbreeding, when progress is introduced in agricultural practice at a wider scale than so far.

Progress[5/] in a wide meaning of the word means here more advantageous solution of technological, technical, organizational and economic problems. The aium of progress is: /1/ improving production system, /2/ applying more effective means of production, /3/ improving work conditions, /4/ more effective qualitative and quantitative results and /5/ better economic effects consisting in cheaper, better and greater production.

Thus, progress includes:
/1/ new technological solutions, /2/ more effective utilization of biological factors /improvement/ of live organisms,

applying means which stimulate useful physiological transformations, /3/ new technological methods, /4/ more efficient tools, /5/ more efficient organization.

Most generally speaking by progress[4/] in agriculture we understand everything that is introduced in production as a new scientific or technical discovery, and also all that is new in given conditions and in a given period of time, although it might have been applied in practice elsewhere for quite a long time.

So a thorough and all-round territorial analysis is the basis allowing to get an idea about the factors of progress which are best adapted to the specific needs and possibilities of a given farm, village, or rural community. It allows to find out the committed errors, existing shortcomings and difficulties encoutered in technical operations, plant growing, animal breeding, and in organizational solutions. The analysis of the initial situation will show what should and can be done in a given year to modernize production in various groups of farms, it will allow to know what are farmers interested in and to what extent the methods of farming have been influenced by tradition.

Below are the successive stages of work indispensable to define the requirements of a given area and aimed at a correct planning of agricultural progress:
Collecting initial data on:

/1/ natural conditions /configuration of surface, climate, soils/
/2/ age and education of farm owners /unsers/
/3/ structure of farms in the village /land fragmentation and subdivision of farms/
/4/ Farming methods, i.e. organizational - technical features of agriculture

/5/ present production situation
/6/ interests of rural population.

The lack or incomplete character of statistical data /particularly for small territorial units/ which are the basis of quantitative conclusions, and the need to get a thorough knowledge of the actual geographical diversification of agriculture are the reason for conducting studies on a micro-geographical scale /field and laboratory as well/.

A selected private, state - or co-operative farm a village or a rural community are a basic unit in such studies. The objective of micro-scale study is to supplement available statistical data as regards:

/1/ agrarian structure /land fragmentation and subdivision of farms/
/2/ agrotechnique /crop rotation, fertilizing, crop cultivation/
/3/ intensity of farming /inputs live and mechanical labour/
/4/ output /yields of all crops, animal production, commercial production, and investigation of the reasons of considerable differences in the production level in single farms: this will help to eliminate factors impeding production growth.

Direct field studies based on intervieus with agronomers, village bailiffs, farmers, etc., and keen observation allow not only to fill the gaps in statistical material but also to know and understand better the complex mechanism of agricultural production, conditions and factors on which production level depends, and this way to get a clearer idea of problems related to agriculture in its complexity and changeability.

The collecting of initial data needed to analyse the given area should begin with defining the natural conditions of the inwestigated unit /village or farm/.

The section of "Territorial analyses and progress programming" operating at the Agricultural Regional Experiment Station at Łosiów from January 1970, carries out microscale case studies in the Opole Voivodship. This analytical studies based on laboratory and field work, are aimed at establishing the needs and possibilities of introducing progressive methods of farming. The method of case studies worked out by the present author may serve as a key to more precise operation of localagricultural service. One of the tasks of this service consists in determining the nature of production reserves in agriculture, their scope and means of their utilization. This is a difficult task as agrocultural production takes place in changing conditions, and changes cannot be determined in advance. In addition, the total of production reserves is composed of the production potential of many thousand small farms with greatly differing resources and possibilities. Comparing production results of single farms to those achieved by the best farms is one of the means of disclosing production reserves in agriculture. Estimates are given more precise value when comparing groups of farms with possibly uniform features. As there is a large number of farms in a district and all the greater in a voivodship, it is impossible to examine all for them, and for this reason it is recommended in analytical studies to carry out a complete analysis of selected farms in a given village. To apply a uniform method of investigation in the analysis of a large number of private farms in the Opole Voiwodship, a "Document journal" has been worked out by the present author.

The selection of a farm for analysis is made by a worker of agronomic service: an agronomist, or inspector of the Agricultural Regional Experiment Station at Łosiów. The chosen farm should be typical of the given village in the following respects:

/1/ farm area /but not less than 5 ha,
/2/ soil conditions,
/3/ land use structure,
/4/ production level,
/5/ level of agriculture,
/6/ economic situation /that is, an average farm should be selected/. A thorough knowledge of the selected farms /in the village/ will allow to disclose the possibly existing production reserves and the ways of their utilization to increase crop and animal production. The analysis of collected data will help in finding the reasons for a considerable difference existing in the level of agrocultural production in various groups of farms and will facilitate the selection of the best orientation in agricultural production for each separate region of the voivodship.

The collecting of initial data indispensable for the carrying out of a keen analysis of a farm /or village/ should begin with the defining of natural conditions of a given unit "It is more and more evident that the solving of a number of economic problems cannot take place by using universally binding rules, but by taking local natural conditions into consideration".[1/]

Despite the importance of natural conditions and the realization of this importance, they have not been examined fully and according to uniform criteria. This has been the result of objective difficulties. The evaluation of natural conditions and defining their usefulness for various branches,

lines and orientations of agriculture as a whole, is a complex task because it is difficult to find appropriate criteria and even more difficult to apply strict standards of evaluation. For these reasons at least for the time being attention should be drawn in micro-scale agricultural-geographical studies on outstandingly negative or particularly favourable features for agroculture, resulting from the land forms, climatic conditions and soils. The knowledge of potential conditions of geographical environment allows a selection of grain varieties which should yield higher crops in the given conditions, and also will indicate the amount of lime and mineral ferilizers to be used. It is generally known that good results of plant growing depend on the selection of varieties best adapted to the given habitat and the effectiveness of fertilizing depends on correct dosing.

Field observations, even without detailed investigation, provide ground for drawing conclusions about rational utilization of natural conditions and possibilities of making improvements in land use and farming methods.

Studies carried out by the present author in the Opole and Brzeg districts [2,3] have revealed the existence of clear correlation between natural conditions and forms of land use. Also the influence of natural conditions on organization of production was recorded.

When investigating and studying natural conditions one should take advantage, apart from own observations, of all material collected or elaborated by specialists on natural sciences /hpysical geographers, pedologists, botanists, climatologists, etc./.

The next stage of case studies is the collecting of the data on the age and education of farm owners /or users/. This is indispensable wherever popularization of progress is concerned, because the rate of innovations in the methods of farming largely depends on the age and educational level of the farmer.

In the summer of 1970 the present author carried out field studies in the Brzeg district with the aim of defining the ability of utilizating the latest scientific achievements in farming. The data revealed that as many as 30.1 per cent of all farm owners in the Brzeg district are people over 60 years of age. The rate of making practical use of scientific achievements is much slower with farmers of such advanced age. The traditional methods of farming have been so strongly instilled in them that agricultural service officers are often unable to convince the farmer about the necessity of applying more up-to-date methods. Vocational qualifications of a large number of farmers, particularly the group of older ones, fail to keep pace with the present requirements. This is proved, among other things, by differences in cereal and potato yields obtained from experimental plots and those got in production. Changes in production require that farmers themselves and agricultural service officers have a greater nad greater amount of professional knowledge, skill and experience in making appropriate decisions. Unskilled and of economic conditions created by the agricultural policy of the state, in its final result hampers the development of agriculture and has a negative effect on the rate of growth of various lines of agricultural production. This imposes the task on agricultural service officers to train farmers within determined scope of knowledge. It also seems indispensable to intensify individual instruction of and advice for this group of farmers. A detailed analysis of the data obtained during case studies with a simultaneous taking into account the needs and interests of local milieus and the influence od tradition on the way of farming, will allow to plan the course of training in a correct way. Vocational training of farmers has now become a factor deciding on the optimum utilization of the means of production placed at the disposal of agroculture.

Case studies have proved that there is only an insignificant group of farmers who take a negative stand towards any innovations and changes which, in their opinion, disturb the traditional order and destroy the adopted way of thinking and acting. More often the reluctance to apply new methods is the result of economic factors. Many farmers fear that the risk of making changes would not always pay. Thus, if a farmer is to make a decision introducing changes in his methods of farming, he must first be throughly acquainted with the essence of the change, take interest in it, become convinced that it is useful, test it in practice or see the effects of the innovation in some other farm.

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FOR TYPES OF AGRICULTURE WITH PREDOMINANT OLIVE GROWING IN SOUTHERN SPAIN - /A CASE STUDY [1]/

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Olive trees in excess of 50 hectares are grown in 34 out of 48 Spanish provinces. While the peninsula's northwestern portion is too humid and too cool for the tree the largest acreages are found in the southern, central and eastern provinces. There are, however, remarkable regional variations as to the role of olive production for the individual farms as well as for the whole socio-economic setting of each of the four regions /Fig. 1/.

The first and most important of the olive growing regions comprises the central portion of the provinces of Jaén and adjacent areas of the province of Cordoba in Andalusia with some of their municipalities having up to 80 % of the cultivated area in olive trees. Since 53 % of the cultivated land in Jaén is in farm units under 100 hectares /Fig. 2/, a moderate size farm of 32 hectares and an irrigated unit of one hectare were chosen as samples. The respective farm guides /Tables 1 and 2/ reveal the high degree of dependence of both the rhythm of labour demand

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[1] Reprinted from GEOFORUM 8, 1971, pp. 15-30, with the permission of the Author and editor.

and total farm production from a single crop. Jaén ranks first among Spain's olive growing provinces with almost 60 % of her farm income being derived from the olive crop /Fig. 3/. The capacity of the oil mills is greatest in Jaén, Cordoba, and Seville /Fig. 4/. On the other hand the climate of this portion of Andalusia is rather favourable for olive trees, the degree of variability in yields coming close to the national average /Fig. 5/. Despite the economic wealth vested in the vast number of olive trees the social conditions for the majority of the rural population in this area of olive monoculture have been extremely poor as is revealed by their social structure: up to 82 % of the rural labour force are hired hands on a daily basis with seasonal employment during the winter months with the harvest of the olive crop, the pruning of the trees, and the first plowing of the fields /Figs. 6 and 7/. A correlation between larger farm sizes and small numbers of cooperatives in the south except for the province of Jaén is obvious. Because of the large number of moderate size farms in Jaén there is an above-average membership in cooperatives as far as olive grove ownerhip and oil mills are concerned /Fig. 8/. Some irrigated groves in southwestern Jaén require around twice the input of labour costs and water while yielding about 5.5 times as much fruit per unit area.

Special problems in this area are the low level of income and the high amount of seasonal unemployment leading to an out-migration of the population by a rate of 10,000 per year during the early 1950 s, 20,000 per year in the late 1950 s, and some 40,000 per year in the early 1960 s. The younger people under 30 years of age make for the greatest percentage of emigrants. As to the rate of illiteracy Jaén ranked first among the Spanish provinces in 1960. Since 1953 a government-sponsored regional deve-

lopment plan, the "Plan de Obras, Colonizacion, Industrializacion y Electrificacion de la Provincia de Jaén", which in 1964 became part of the first national four-year plan, has helped to improve the situation by creating large irrigation districts in the Upper Guadalquivir Valley and offering incentives to industrial plants processing local agricultural and mineral products while partly working on a seasonal basis - but during the summer season. The syndicates organized school programmes for the retraining of agricultural labourers /Formacion Profesional Acelerada/.

Close to 75 % of all table olives are grown in a few municipalities east and west of the city of Seville, being known as the Aljarafe Area. Because of their outstanding quality those table olives to be exported to foreign countries almost exclusively originate in this area. Here many trees have been inoculated with shoots of the favourable species of manzanilla and gordal. The young plants are protected by cones of clay against wind and drought and the groves require approximately 1.5 times as much cost as compared to olives grown for oil production while yielding about four fold. Since more than 70 % of the cultivated land of the Aljarafe municipalities are in large farm units over 100 hectares the farm guide of a farm of 582 hectares is presented /Figs. 9 and 10, Table 3./. In recent years more and more olive groves have been converted in to table olive production. Despite the high yields a considerable number of trees even in the Aljarafe Area is also grown for oil production, and a considerable percentage of the farm land is taken by other crops so that the enterprises are to be considered mixed farms. There are at least two reasons for the table olive not having taken over the area completely: table olive species have only been cultivated for some 40 years which means a rather short period for the farmers to acquire the knowledge necessary for the

crop and to explore the market situation; secondly the farmers are strongly opposed to the risks of a monoculture.

The third region encompasses portions of the south central provinces of Ciudad Real, Toledo, and Badajoz with intercropping of the olive tree and grapes or wheat being widespread /cultivo asociado/. Some time ago there has been a selective process of leaving the slopes /lomas/ to the olive tree while concentrating the deep-rooting grapes on the level lands. Since there has been an overproduction of regular wines for consumption on the internal market the government made an attempt to restrict vineyards in the Mancha provinces. On the other hand oil consumption in Spain is about to increase by 25 % during the decade 1965-1975. The government having a definite interest in stimulating the olive oil production has permitted the cultivation of grapes on new fields under the condition that olive trees be planted on the same lot. This has been a great incentive for intercropping in the Mancha region. Olive trees are planted at intervals twice as great as usual with an average of 40 trees per hectare as compared with 100 or more trees in the regular grove. An olive tree takes the place of every fourth grape /el cuarteo/. As the tree needs approximately 15 years for full production while giving no yields at all during the first six or seven years the intercropping system allows for some income during the period of development of a new grove. Moreover, one-year crops like wheat or forage crops in the grove give the farmer some additional income in those years when he is especially short of cash. In the Mancha region forage crops are badly needed for the integration of tillage and animal husbandry.

The total yields per area unit are usually higher than those from fields in a single crop system, and the intercropping also makes for a smoothing of the unemployment curve over larger parts of the year as is revealed by the farm guide /Fig. 11, Table 4/. While the income per hectare from grapes is highest under present prince conditions the income from mixed cultures of grapes and olive trees lies between that of wine and that of olives respectively. The labour demand per area unit in a mixed grove is about twice as high as in the regular olive grove and about 1.5 times as high as in the vineyard /48 : 24 : 36 hours/hectare/.

Since the days of the Military Orders of Calatrava, San Juan, and Santiago large estates have been prevailing, and at present around 62 % of the cultivated land is in farms of more than 100 hectares. The sample farm got around 700 hectares. In this particular case only 11 % of the labour force are not permanent and mainly employed during the months of June through August, October, December and January for the harvest of wheat or oats, grapes, and olives respectively. The farm guide also underlines Dumont's recommendation to convert some olive groves in Andalusia to fields for other crops and instead expand olive growth on favourable soils of the Mancha region.

The fourth region comprising the interior portions of the Catalan and Levante provinces is, with the only exception of the province of Tarragona, the least important with regard to the olive tree which is grown here under marginal conditions. Within the drier portions of the interior competition with the almond tree is keen because of the higher prince for the same amount of fruit and lesser labour costs

for the harvest. Very often the trees have been highly neglected. Little labour has been put into the groves so that olive growing has much contributed to the seasonal movement of farm labourers between the drier interior and the irrigated coastal plains of the Levante provinces as well as to emigration to other parts of Spain or to foreign countries. Many agro-technical adjustments to drought and rough terrain were necessary such as certain water conservation methods /regadios eventuales/, irrigation with ground water or from reservoirs, and terracing. Yields are very much depending upon the accumulative precipitation during the period from October through April in the arid southeast of Spain. Annual variations of precipitation are higher than in any other part of the country. The weather station at Santiago de la Ribera /Murcia/ reported 576 mm of rainfall in 1954 against 84 mm in 1961 while the amount of 302 mm in 1947 came close to the long term average. The province of Murcia is among the two Spanish provinces with the highest variations in yields of the olive crop.

Under such extreme conditions only large enterprises can survive, such as our sample farm of 1260 hectares /Fig. 12, Table 5/. The farm guide shows no olive crop for the year 1948 while in the following year the farm harvested 406,000 kg. In 1950 the yields dropped to 13,000 kg. It is, therefore, impossible to draw any conclusion on farm income from one year only. Despite the very irregular yields the large estates maintain an oil mill of their own to avoid dependence from distant agents and their low offers for the perishable fruit that can only be stored for a very limited period of time. There are neither commercial oil mills nor cooperative mills in the area.

In 1951 the government initiated a replantation programme for the levante provinces which in the province of Murcia led to a considerable increase of the acreage in almond trees /20,600 hectares/ as compared to an increase of 2,000 hectares of olive trees during the first decade. After 1964 the planting of almond trees was no longer subsidized. One might draw the conclusion, however, that the marginal climatic conditions do not justify subsidies for any kind of fruit tree in this region, and that the subsidies should rather be granted to farmers in the Mancha region.

With the exception of the harvest and pruning from November through March olive growing in Spain is of low labour intensity and thus lacking the major characteristic by which horticulture and fruit growing use to be distinguished from the cultivation of forage, grain and root crops in Central Europe. By correcting irregular rows of trees in older groves or replanting trees at larger intervals farmers have been enabled to make better use of the tractor in recent years, and even the most time-consuming task in the grove, the harvest of the fruit, has become mechanized in some areas with the introduction of the so-called "shaker" since 1963 and a fruit collecting machine of Italian origin. The changes make desirable a re-evaluation of the government's concept to keep a labour force reserve in the olive growing regions adequate to the peak of labour demand during the time of harvest and pruning. The government's retraining programme certainly has its merits as a social measure since it enables former farm labourers to earn money in industrial jobs. However, only few of the retrainees were able to find positions within the confines

of their native provinces so that the workshops are not really an integral part of the provincial development schemes. Since 1969 when the field work for the present study was completed the government's policy has undergone some profound changes which may be considered symptomatic for the rapid overall changes of the socio-economic structure in the country in general, and in the four olive growing regions in particular.

Table 1

Farm Guide of Finca M., Province of Cordoba /Spain/

1	Natural setting			
11	Altitude /m/	450		
12	Landforms	undulating		
13	Soil-group	grey-reddish serosem		
14	Precipitation /mm/	800		
15	Average annual temp. /C°/	17		
2	Location factors			
21	Distance to railroad /km/	10		
22	Distance to oil mill /km/	8 /Cabra/		
23	Internal distances	single farm, 3 parcels		
3	Land use pattern			
31	Size of farm /ha/	32		
32	Arable land /ha/	30		
33	Land in olive trees /ha/	30 /monoculture/		
331	Density of trees/ha	80		
332	Average yield/ha /kg/	1360		
34	Fertilizer	manure and nitrogen /one fourth of area every year/		
35	Irrigation	none		
4	Livestock and machinery			
41	Livestock in AU and	2 mules	1.6	5.4
	AU/100 ha	1 pig	.2	.7
42	Machinery	none		
421	ha/tractor	—		

5 labour input

51	Total labor force /AK/	4.06	
52	Seasonal labor /AK/	.3	
53	Labor demand per year /h/	10440	
54	Labor demand per month /h and tasks/		
	Jan.	1680	harvest
	Feb.	2048	harvest, plowing, fertilizing
	Mar.	1440	pruning, plowing, hoeing
	Apr.	1080	second plowing, hoeing
	May	120	third plowing
	June	1032	plowing, harrowing
	July	256	harrowing
	Aug.	72	harrowing
	Sep.	72	
	Oct.	960	
	Nov.	- -	
	Dec.	1680	harvest

6 Financial situation

61	Olives ptas/ha	1360 kg á 5.--	6800.--
		minus inputs	3419.--
		net income	3381.--
62	Olives ptas/AK	25 358.--	
63	Total production ptas/ha	3 381.--	
64	Total production ptas/AK	25 358.--	

Table 2

Farm Guide of Finca X., Province of Jaén /Spain/

1 Natural setting

11	Altitude /m/	570
12	Landforms	rolling
13	Soil group	grey serosem
14	Precipitation /mm/	630
15	Average annual temp. / °C /	16.5

2 Location factors

21	Distance to railroad /km/	5
22	Distance to oil mill /km/	5 /Jaén/
23	Internal distances	1 parcel

3 Land use pattern

31	Size of farm /ha/	1
32	Arable land /ha/	1
33	Land in olive trees /ha/	1 /monoculture/
331	Density of trees /ha	130
332	Average yield/ha /kg/	7500
34	Fertilizer	yes; amount not known
35	Irrigation	yes; in July and August

4 Livestock and machinery

41	Livestock in AU and AU/100 ha	2 mules	1.6	/on part-time basis/
42	Machinery	none		
421	ha/tractor	- -		

5 Labor input

51	Total labor force /AK/	.41	
52	Seasonal labor /Ak/	- - -	
53	Labor demand per year /ha/	1024	
54	Labor demand per month /h/ /and tasks/		
		Jan.	312 harvest, pruning
		Feb.	---
		Mar.	56 plowing, pesticides
		Apr.	---
		May	---
		June	---
		July	80 irrigation
		Aug.	80 irrigation
		Sep.	---
		Oct.	---
		Nov.	24 plowing
		Dec.	440 harvest, weeding

6 Financial situation

61	Olives ptas/ha	7500 kg á 3.46	25 950.--
		minus inputs	7 500.--
		net income	18 450.--
62	Olives ptas/AK	45 010.--	
63	Total production ptas/ha	18 450.--	
64	Total production ptas/AK	45 010.--	

Table 3

Farm Guide of Finca R., Province of Seville /Spain/

1 Natural setting:		
11	Altitude /m/	100
12	Landforms	almost plain
13	Soil group	deep sandy serosem
14	Precipitation /mm/	640 /average 1955-60 only/
15	Average annual temp. /°C/	18 /lacking; metabolism/
2 Location factors		
21	Distance to railroad /km/	11
22	Distance to oil mill /km/	private mill; 3 km to factory for table olives
23	Internal distances	single farm with land on either side of highway Seville-Pilas
3 Land use pattern		
31	Size of farm /ha/	582
32	Arable land /ha/	578
33	Land in olive trees /ha/	280 table olives, 50 oil olives: 77 ha newly converted to table olive production 1962-64
331	Average yield/ha /kg/	800-1350, depending on variety
34	Fertilizer	20 t/ha manure in new grove, various chemical fertilizers
35	Irrigation	yes, in orange grove of 8 ha

4 Livestock and machinery

41	Livestock in AU and AU/100 ha	poultry		
		200 pigs	35	6.1
		30 cows	30	5.2
		14 mules	11.2	2.0
		8 horses	8	1.4
		4 donkeys	1.4	.2
42	Machinery	3 tractors, 1 combine		
421	ha/tractor	193		

5 Labor input

51	Total labor force /AK/	52.4
52	Seasonal labor /AK/	40.4 /1964: 32.4/
53	Labor demand por year /ha/	133 578
54	Labor demand per month /ha/	

Jan.	8897	July	8939
Feb.	7630	Aug.	12271
Mar.	13895	Sep.	15981
Apr.	14231	Oct.	15337
May	9744	Nov.	8768
June	10822	Dec.	7063

6 Financial situation

61	Olives ptas/ha /gross/	900 kg á 30.-	27 000.-- /Gordal/
		800 kg á 15.-	12 000.-- /Manzanilla/
62	Total production ptas/ha	1 561.--	
63	Total production ptas/AK	17 224.--	

Table 4

Farm Guide of Finca D.L., Province of Ciudad Real /Spain/

1 Natural setting		
11	Altitude /m/	680
12	Landforms	plain to undulating
13	Soil group	grey-reddish burosem /?/
14	Precipitation /mm/	400 /irregular; drought hazard/
15	Average annual temp. /°C/	15
2 Location factors		
21	Distance to railroad /km/	6
22	Distance to oil mill /km/	11 /Miguelturra/
23	Internal distances	single farm with land on either side of highway Ciudad Real-Toledo
3 Land use pattern		
31	Size of farm /ha/	700
32	Arable land /ha/	651
33	Land in olive trees /ha/	70 olives trees and grapes 30 olive trees and forage crops
331	Density of trees/ha	40 - 80 /grapes or forage resp./
332	Average yield/ha /kg/	1200-2400 respectively
34	Fertilizer	yes; amount not known
35	Irrigation	yes; 1 ha of alfalfa

4 Livestock and machinery

41	Livestock in AU and AU/100 ha	4000 pigs	700	107.5
		500 sheep	50	7.6
		17 horses	17	2.6
42	Machinery	4 tractors, 1 combine, 3 cultivators		
421	ha/tractor	175		

5 Labor input

51	Total labor force /AK/	73 /28 in charge of livestock/
52	Seasonal labor /AK/	8
53	Labor demand per year /h/	not known
54	Labor demand per month /h/	not known; peak demands during Dec. and Jan. for olive harvest, June, July, Aug. for grain harvest, Oct. for vintage

6 Financial situation

61 Olives ptas/ha — on field with olive trees and grapes:

1200 kg olives á 6.50	7 800.--
6000 kg grapes á 2.--	12 000.--
gross income	19 800.--

on field with olives and forage crop:

2400 kg olives á 6.50	15 600.--
1200 kg barly á 4.80	5 760.--
gross income	21 360.--

62 Total production ptas/ha — data not available

Table 5

Farm Guide of Finca L.P., Province of Murcia /Spain/

1 Natural setting		
11	Altitude /m/	5o
12	Landforms	almost plain /artificial terraces/
13	Soil group	serosem /?/
14	Precipitation /mm/	327 /average 1947-61; very great variations/
15	Average annual temp. /°C/	16.4
2 Location factors		
21	Distance to railroad /km/	3 /no regular stop/
22	Distance to oil mill /km/	private mill
23	Internal distances	single farm
3 Land use pattern		
31	Size of farm /ha/	1259.5
32	Arable land /ha/	124o /78o ha of rough pasture leased to other operator/
33	Land in olive trees /ha/	22o
331	Density of trees/ha	ca 8o
332	Average yield/ha /kg/	o - 1846 /1947-61/; high variation
34	Fertilizer	yes; amount not known
35	Irrigation	no; but water conservation methods /regadios eventuales/; deep well in preparation

4 Livestock and machinery

41	Livestock in AU and AU/10^0 ha	12 mules poultry	9.6	.8
42	Machinery	3 tractors		
421	ha/tractor	153		

5 Labor input

51	Total labor force /AK/	13
52	Seasonal labor /AK/	1
53	Labor demand per year /h/	data not available
54	Labor demand per month /h/	data not available

6 Financial situation

61 Olives ptas/ha

data of one particular year not significant because of high variations of yields; significant correlattion of olive yields and amounts of precipitation from October through April of the following year / r = .72/

year	t olives	prec.mm	year	t Olives	prec.mm
1947	157,o	21o,9	1955	19,o	196,o
1948	o,o	215,4	1956	3o2,o	412,8
1949	4o6,o	5o5,3	1957	67,o	175,8
195o	13,o	26o,o	1958	66,o	267,6
1951	15,5	171,5	1959	6,o	3o4,8
1952	31,o	2o5,2	196o	84,o	141,o
1953	151,o	574,1	1961	o,o	1o5,2
1954	6,5	166,3			

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F i g u r e s

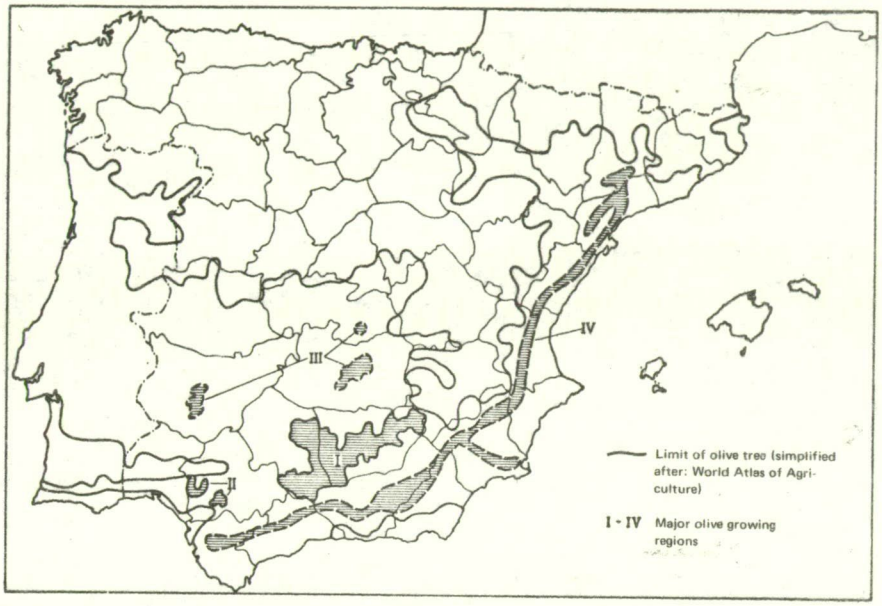

IV
III
II
I
Limit of olive tree (simplified after: World Atlas of Agriculture)
I - IV Major olive growing regions

Fig. 1.

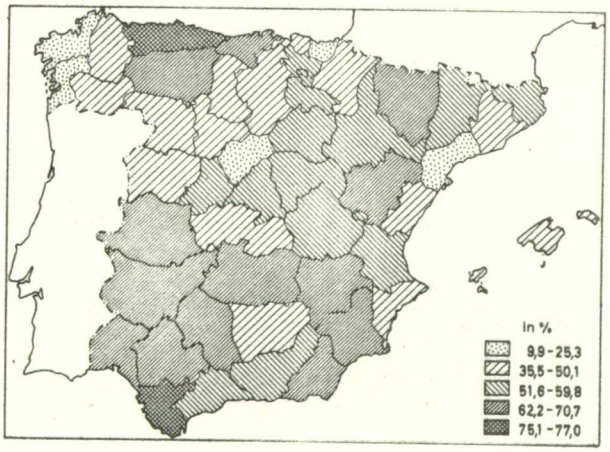
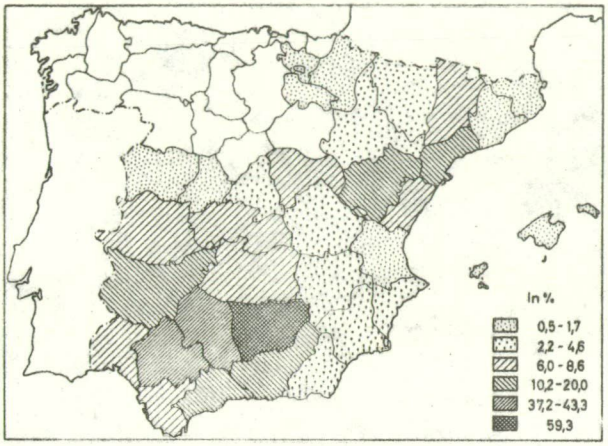

in %
9,9 - 25,3
35,5 - 50,1
51,6 - 59,8
62,2 - 70,7
75,1 - 77,0

Fig. 2.


In %
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6,0 - 8,6
10,2 - 20,0
37,2 - 43,3
59,3

Fig. 3.

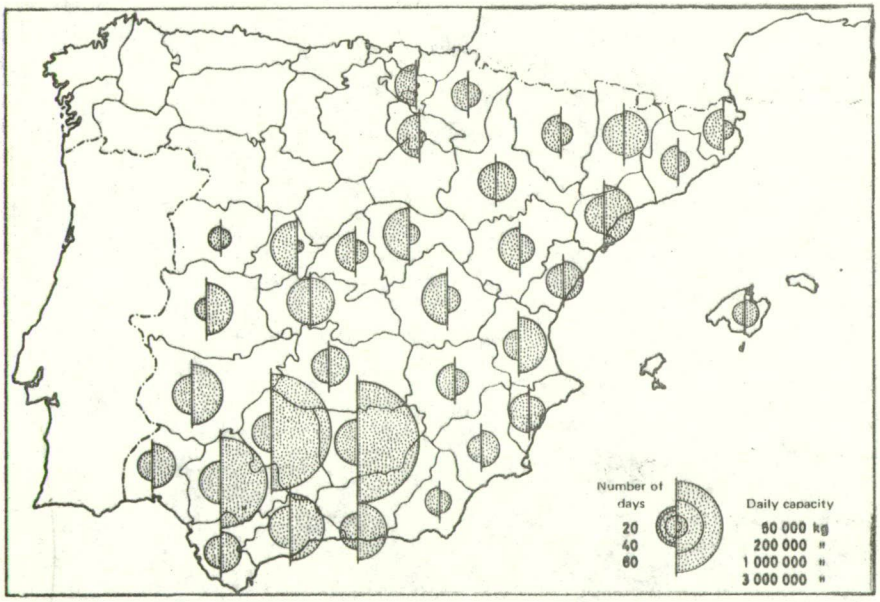
Number of days
20
40
60
Daily capacity
60 000 kg
200 000 "
1 000 000 "
3 000 000 "

Fig. 4.

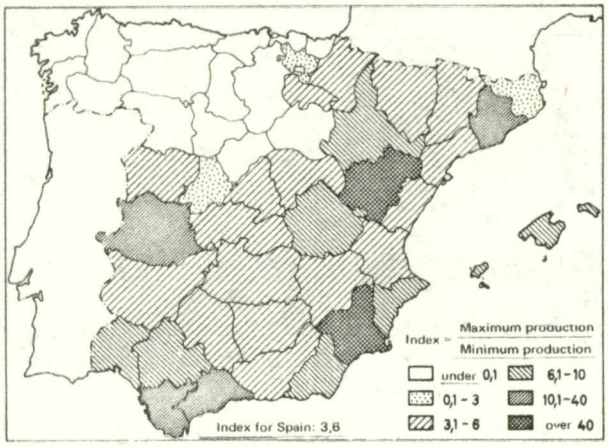
Index = Maximum production / Minimum production
under 0,1
0,1 - 3
3,1 - 6
6,1 - 10
10,1 - 40
over 40
Index for Spain: 3,6

Fig. 5.

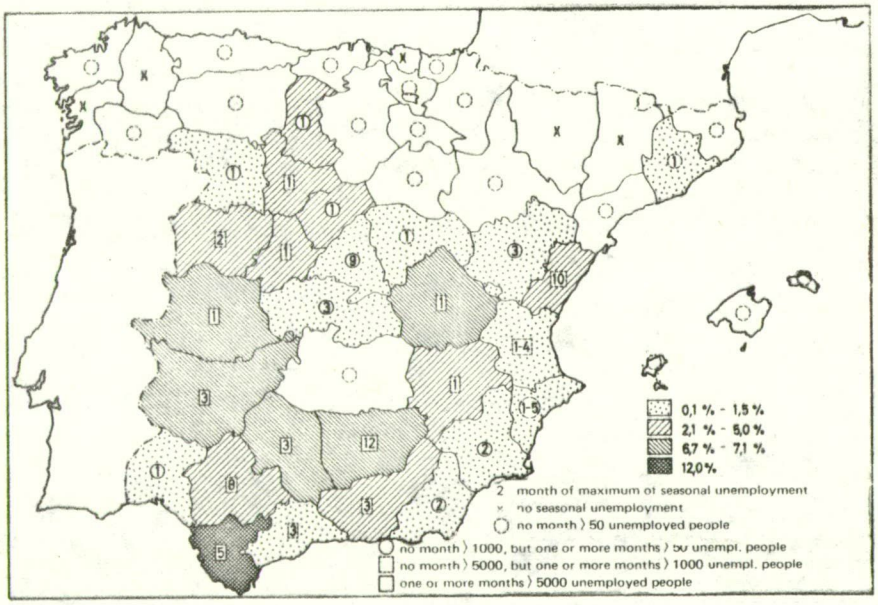
0,1 % - 1,5 %
2,1 % - 5,0 %
6,7 % - 7,1 %
12,0 %
2 month of maximum of seasonal unemployment
x no seasonal unemployment
no month > 50 unemployed people
no month > 1000, but one or more months > 50 unempl. people
no month > 5000, but one or more months > 1000 unempl. people
one or more months > 5000 unemployed people

Fig. 6.

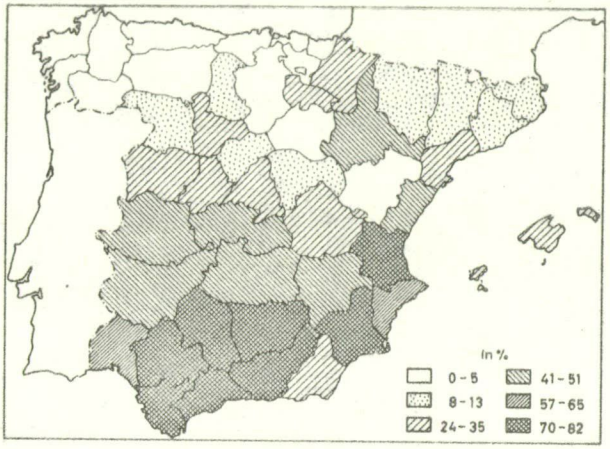
In %
0 - 5
8 - 13
24 - 35
41 - 51
57 - 65
70 - 82

Fig. 7.

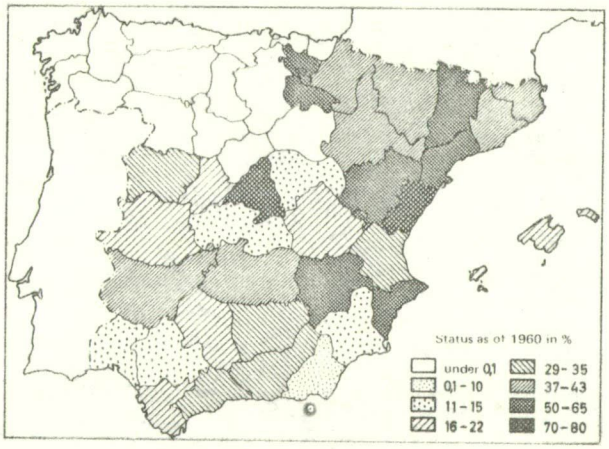
Status as of 1960 in %
under Q1
Q1 - 10
11 - 15
16 - 22
29 - 35
37 - 43
50 - 65
70 - 80

Fig. 8.

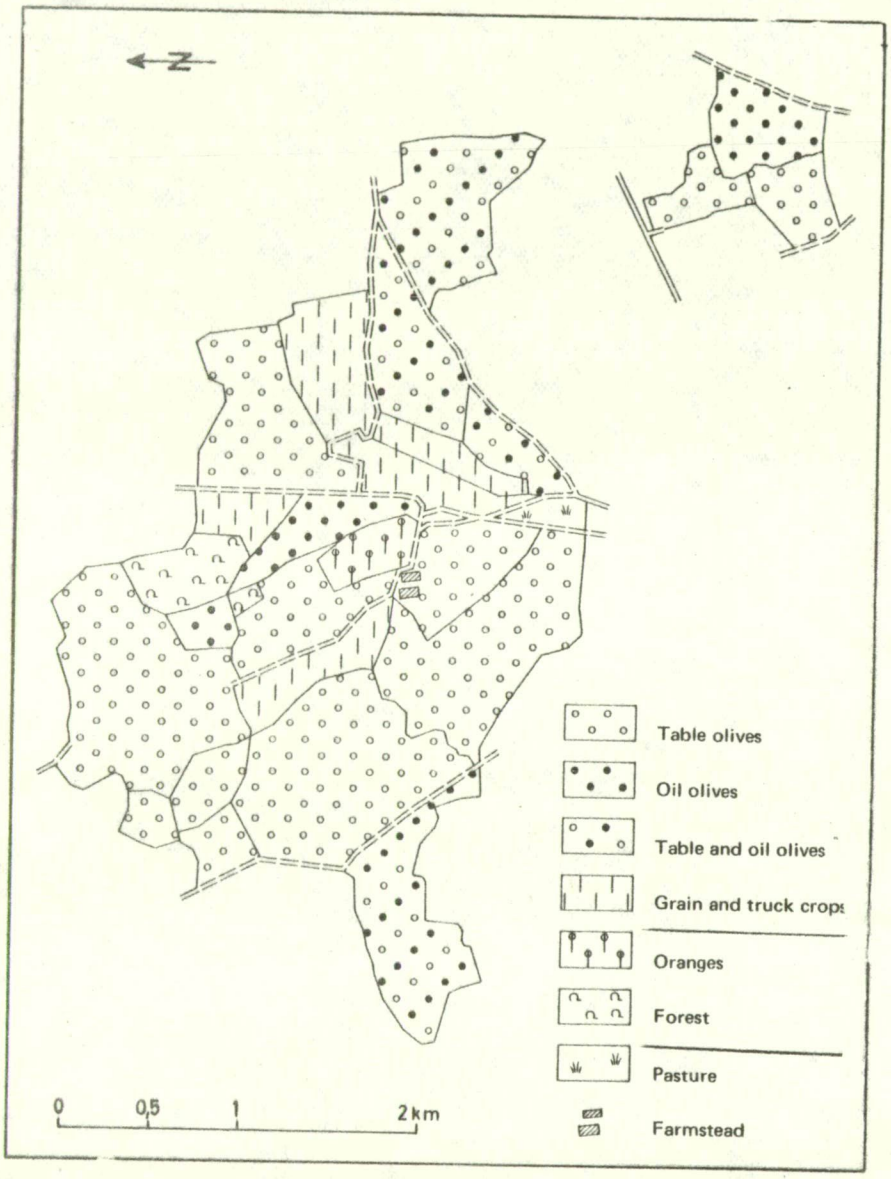
N
Table olives
Oil olives
Table and oil olives
Grain and truck crops
Oranges
Forest
Pasture
Farmstead
0
0,5
1
2 km

Fig. 9.

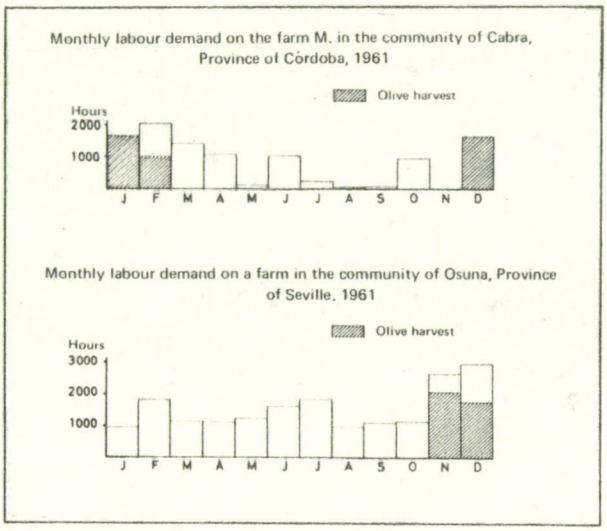
Monthly labour demand on the farm M. in the community of Cabra, Province of Córdoba, 1961
Olive harvest
Hours
2000
1000
J F M A M J J A S O N D
Monthly labour demand on a farm in the community of Osuna, Province of Seville, 1961
Olive harvest
Hours
3000
2000
1000
J F M A M J J A S O N D

Fig. 10.

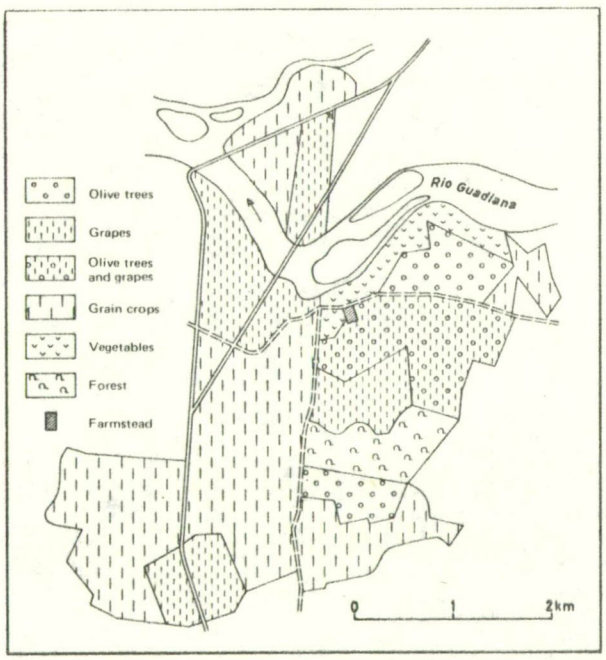
Olive trees
Grapes
Olive trees and grapes
Grain crops
Vegetables
Forest
Farmstead
Río Guadiana
0
1
2km

Fig. 11.

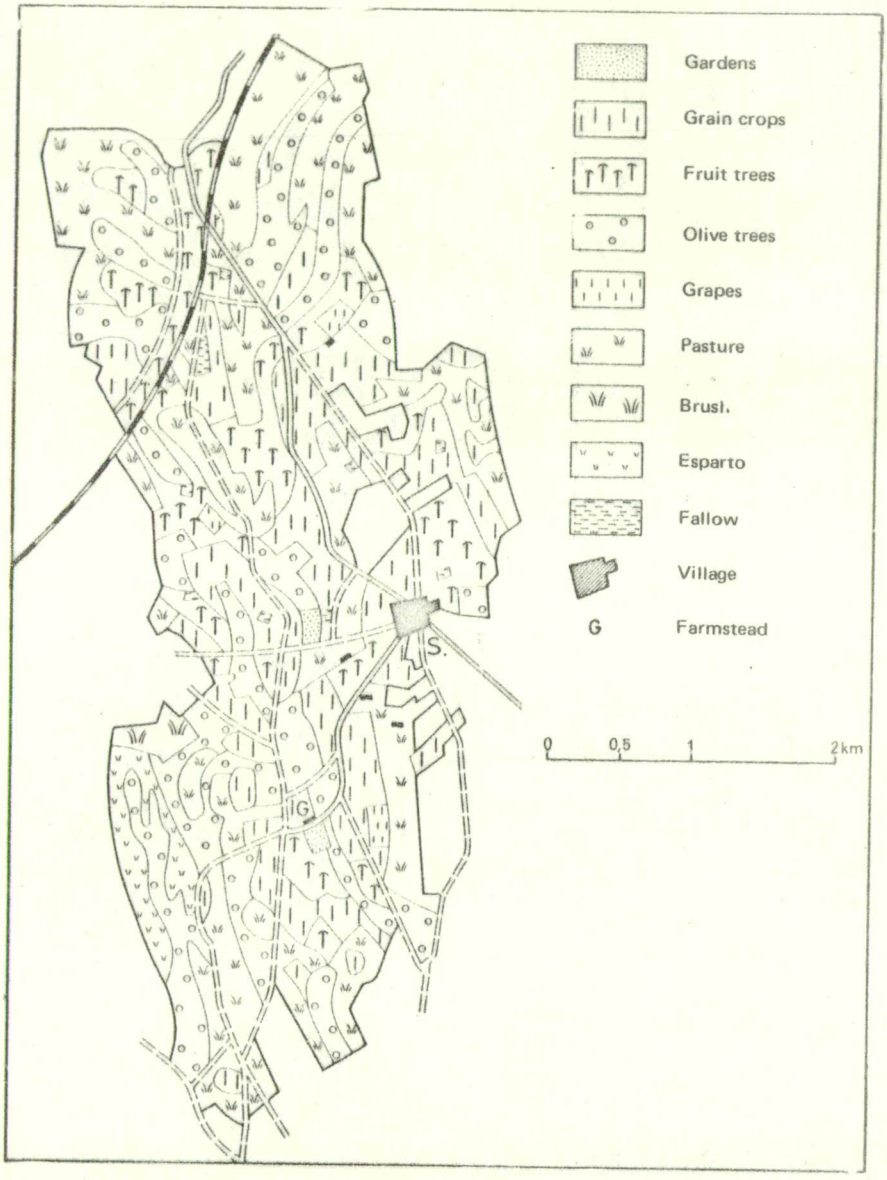
Gardens
Grain crops
Fruit trees
Olive trees
Grapes
Pasture
Brusl.
Esparto
Fallow
Village
G
Farmstead
S.
G
0
0,5
1
2km

Fig. 12.

CHANGING PATTERNS OF AGRICULTURAL SETTLEMENTS IN DENMARK

A. H. K a m p p
Royal Danish School of Educational Studies, Copenhagen
/Denmark/

Geographical-historical research into rural settlements and their development has a long tradition in Denmark and Sweden. The principal reason for this is no doubt to be found in the after European standards quite source material comprises a completely preserved entire survey of all cultivated land in the kingdom from the 1680's with records panied by maps, although the construction of such is to some extent possible.

On the other hand, there are maps on the scale of 1:4, 000 covering the whole country from the years around 1800. Practically all these maps, which were drawn up partly in connection with the enclosure the enclosure movement /after 1769/, and partly for use in the assessment of land tax that came into force in 1844, have been preserved and are easily available for research. On these oldest detailed maps, the agricultural settlement in the greater part of Denmark appears as manor estates and closely built villages. No final solution has yet been found to the question of whether scattered or concentrated settlement is oldest in Denmark. But at least from the beginning of the Christian Era to around the year 1800 the village was the traditional

form of settlement in most parts of the country. The widely varying shape and size of the villages as well as their localization generally indicate their dependence on or adaptation to local agricultural conditions, surface relief, the shape and extent of the meadows, the possibilities for tilling, the ground water level, the presence of suitable drinking-water, the possible danger of flooding, and probably also economic, social and political conditions.

There has however always been scattered habitation, single farms, particularly in the meagre or strongly undulating regions of the country or where there is most widespread forest.

Fig. 1, which has been produced on the basis of parish statistical returns from King Christian Vth's land tax in 1688 illustrates how the situation was until immediately before the exchange of strip holdings and scattering of farms around 1800. On Bornholm, most farms were situated near the coast on the slopes of the rift valleys, while the interior of the island was common. In West Jutland, the farms were often situated in open rows along small rivers and meadows with the heath as common /fig. 2,3/

Fig. 4 is an example of the settlement structure prior to the scattering of farms from the village of Sänder Vestud on the island of Mön is South East Denmark. All the farms and houses stand concentrated in the village. On 5 we see a neighbouring village, Alebäk, with the manor farm Alebäkgard, where ther farmers carried out villein service.

The dissolution of the open field system resulted partly in an exchange of strip holdings with a redistribution of land, a process which was concluded in the course of a few decades, partly in a successive scattering of rural habitation from the closed settlement clusters into the previously uninhabited fields /6/. This picture is not wholly typical of the scattering process which took place in Denmark, in as much as all the farms here moved out simultaneously. It will be seen that the smallholders received small parcels of land on what was formely the common. After the exchange of strip holdings with the farms situated in the middle or at the edge of their fields, the village has no longer any natural function as a habitational pattern in the Danish cultural landscape; it has gradually changed character. The number of craftsmen increased and the character of the settlement was eventually altered; the village became a service town for the surrounding locality /fig. 7/.

Some villages completely or almost completely disappeared as a result of the scattering of farms; a few, as this oner /fig. 8/, were left entirely intact as settlements by the exchange of strip holdings, which incidentally was incomplete in precisely this village.

As a result of favourable trade conditions for Danish agricultural goods, there was a shortage of labour in agriculture in the 1890's; an act was therefore passed making available Government loans for the setting up of farm workers' cottages with rapidly reached saturation point as a result, and whith a renewal of the act every 5th year the limit to the size of the farms was steadily extended. The aim quickly became the independent farm large enough to keep a family. In accordance with the new laws relating to the parcelling out of estates passed in 1919, the Government

was to acquire land and pass it on to state tenants; this was the case with the parcelling out of glebe and with the transition of majorats to free property in return for the surrender of a part of their lands for parcelling out. /Majorats were estates which were exempt from taxation and which passed on within certain families; if the family should die out, the estate would fall to the Crown./

At the top of fig. 9 we can see farm workers' cottages resulting from the act of 1899; below is to be seen Bjernede Farm fully parcelled out after the act relating to the conversion of entailed estates into fee simple. And on fig. 10 we see a group of smallholders' colonies, a characteristic piece of cultural landscape having arisen in this century.

In the Middle Ages, Spanager was a village, but no map from the time has survived. 5 farms were merged into one home farm by royal concession in 1688. Fig. 11 shows this home farm's fields in 1808 with the names and the soil quality from that time. And on the next picture /12/ we see its parcelling out at the conversion of 1923 traced on to an ordnance map with the 45 new farms. But practice has for many years worked counter to the parcelling acts; thus the number of farming properties in Denmark as a whole was less in 1960 than in 1900, although 30,000 state holdings were set up in this period when amalgamation and discontinuation were in conflict with the act.

Figure 13 shows the situation in the same area in 1969, when 26 original farms were run by 13 farmers, in addition to which 3 other farms were leased by farmers outside the area.

Alebäk Farm, whichII have mentioned earlier, and which was set up in 1769 on the lands of 14 farms, was parcelled out into 16 state holdings in 1922, which again were reduced to 11 in 1969.

Two other manor estates, both of which were set up on the basis of land from village farms in the 1500's have been investigated with respect to parcelling out and later amalgamation: Lindersvold on Zealand, which was parcelled out into 40 smallholdings in 1922, but which only comprised 29 farms in 1970, and Nislev Farm on Funen, which was parcelled out in 1925 into 37 farms and 8 market gardens; in 1969 the 37 farms had been amalgamated into only 26. The buildings from the discontinued farms do not of course all disappear, but they are no longer occupied by farmers.

All in all, the greatest metamorphosis of the habitational landscape occurred without doubt as a result of the enclosure movement, and it is interesting to compare this map of the individual farms as a percentage of the total number of farms in 1930 with the corresponding map for 1688; the number has risen from a few percent of individual farms to around 50 % /fig. 14/. Fig. 1 was prepared by Professor Axel Steensberg, fig. 14 by Lars and Axel Steensberg.

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F i g u r e

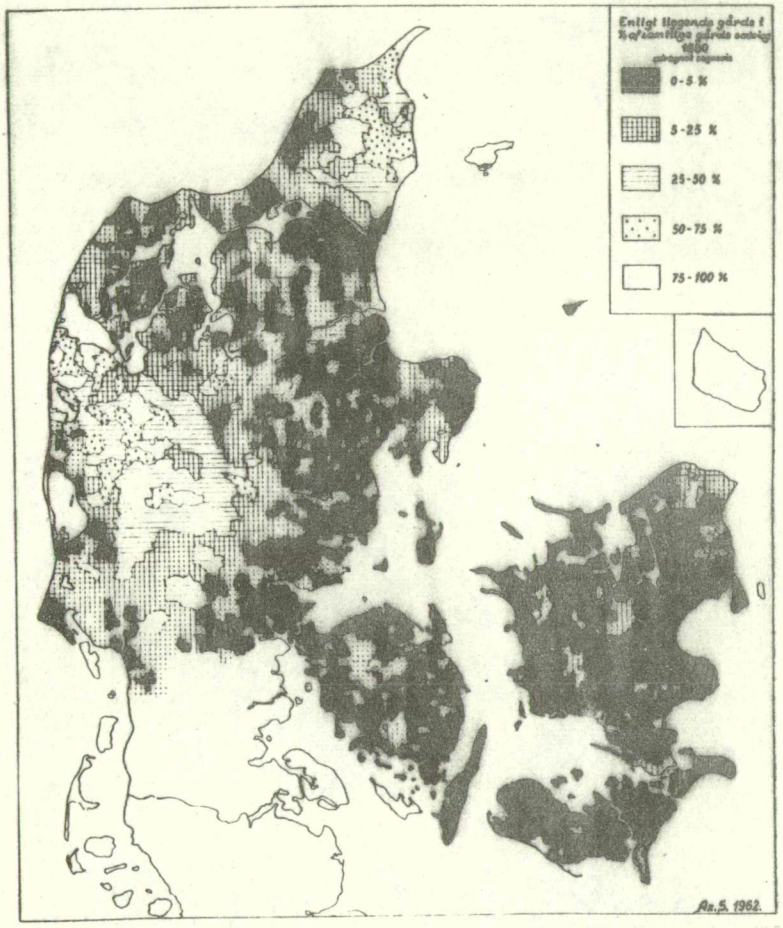

Fig. 1.

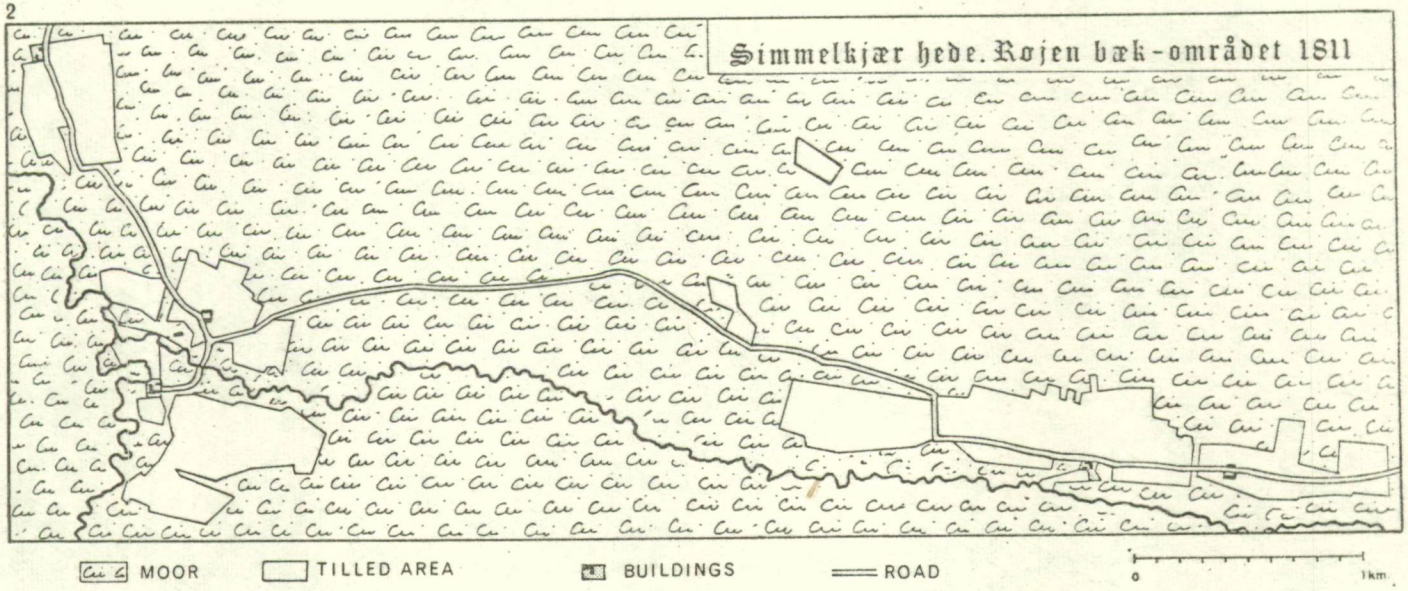
Simmelkjær hede. Rojen bæk-området 1811
MOOR
TILLED AREA
BUILDINGS
ROAD
0
1km

Fig. 2.

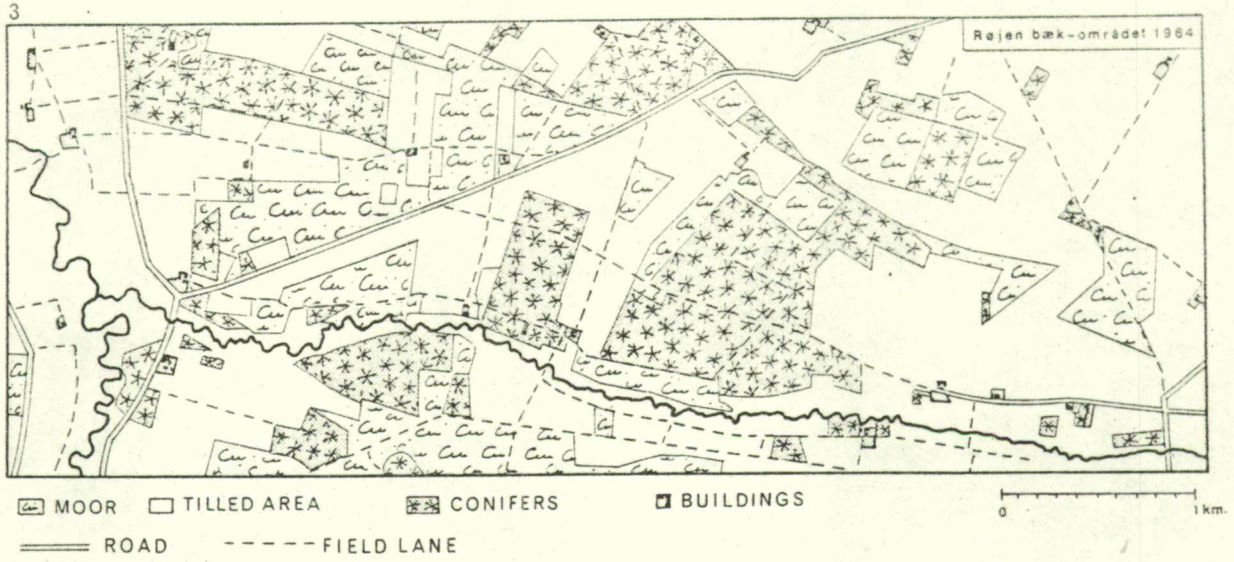
Røjen bæk-området 1984
MOOR
TILLED AREA
CONIFERS
BUILDINGS
ROAD
FIELD LANE
0
1 km.

Fig. 3.

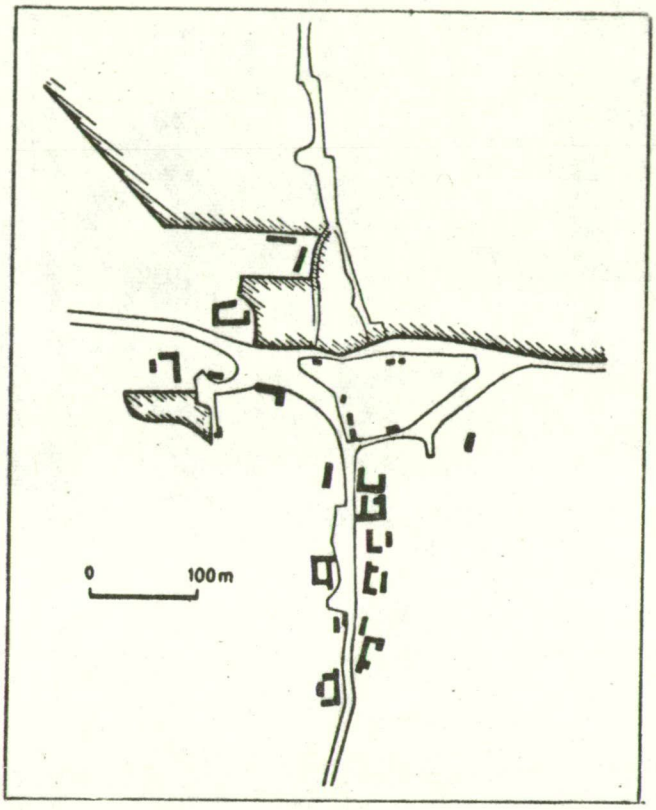

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Fig. 4.

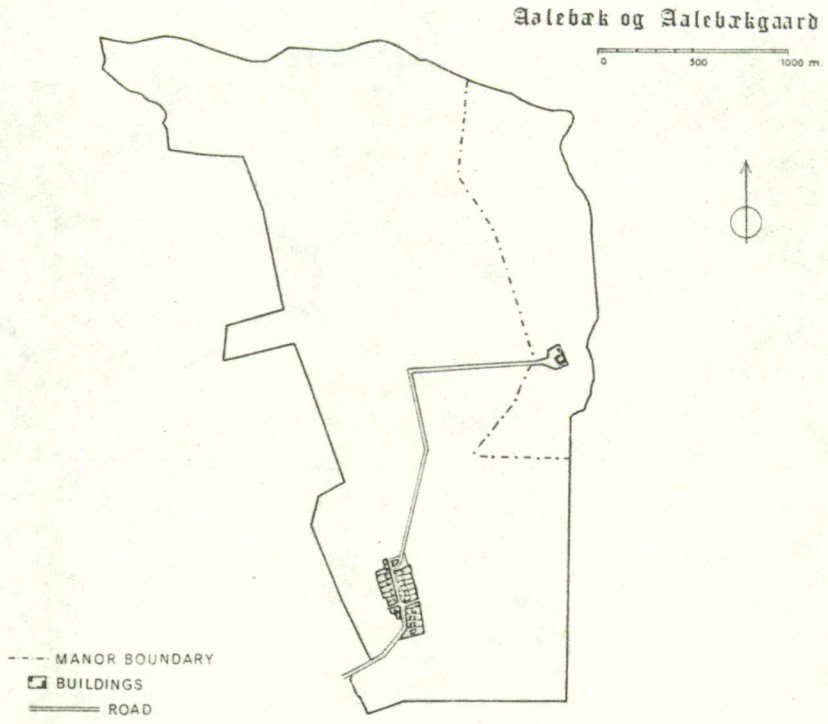
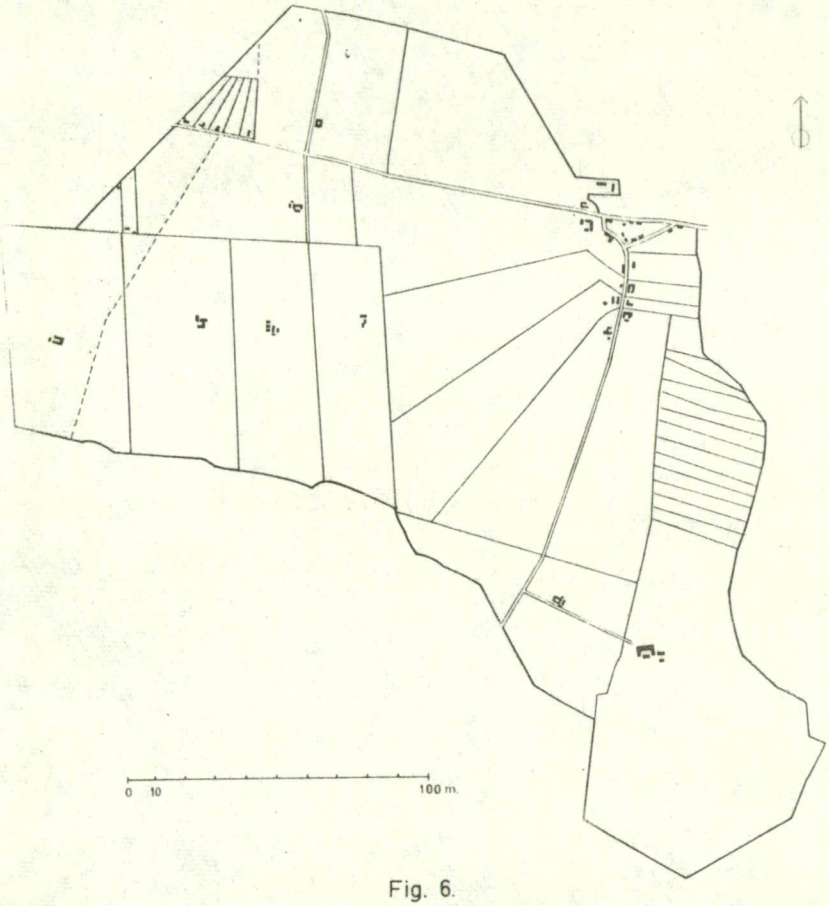

Aalebæk og Aalebækgaard
0
500
1000 m.
MANOR BOUNDARY
BUILDINGS
ROAD

Fig. 5.



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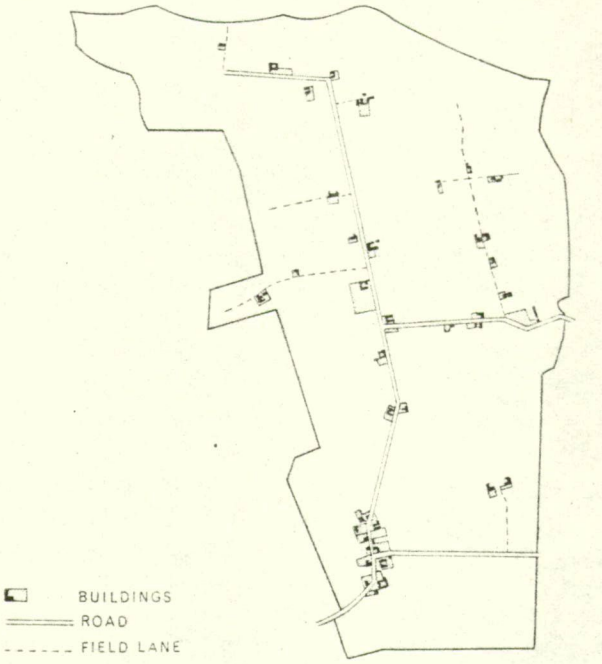

Fig. 7

Fig. 8.

Fig. 9.

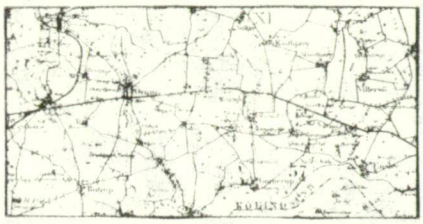

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Fig. 10.

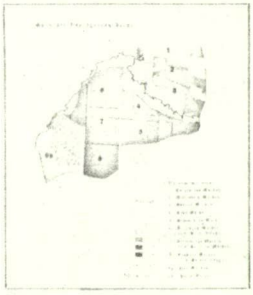

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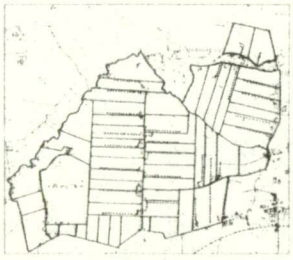
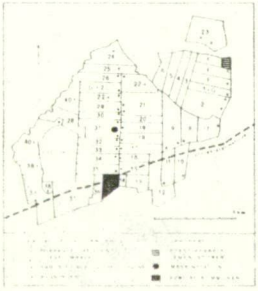
Fig. 11.



12

Fig. 12.



13

Fig. 13.

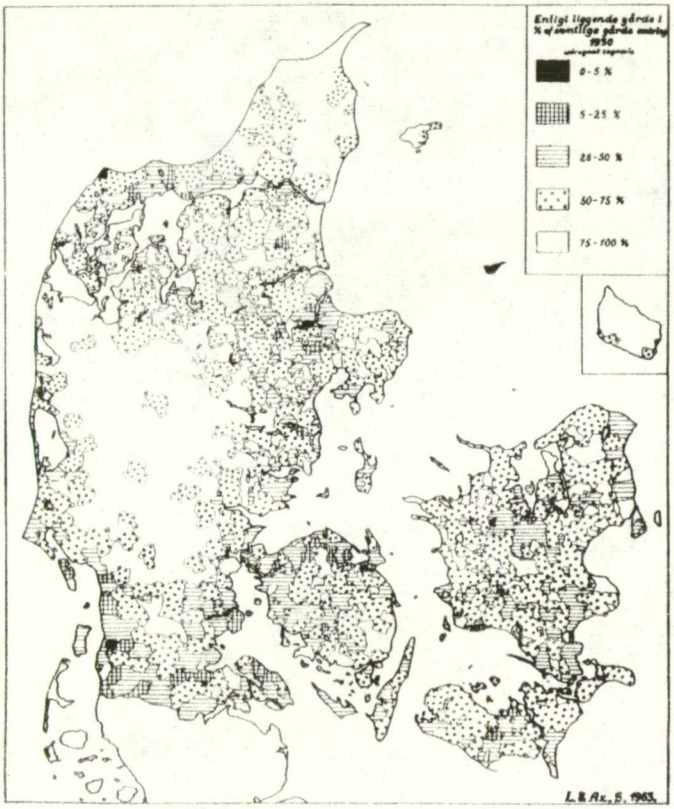

Enligt liggande gårds i % af samtliga gårds areal år 1950
0-5 %
5-25 %
25-50 %
50-75 %
75-100 %
L.B.Ax.S. 1963.

Fig. 14.

LAND TENURE IN CYPRUS - A POWERFUL TYPOLOGICAL CRITERION

G. K a r o u z i s

Head, Land Consolidation Service
Ministry of Agriculture and
Natural Resources
/Cyprus/

Cyprus, the biggest island in the Eastern Mediterranean, covers an area of 3,572 sq. miles /9,251 sq. Km/. The variety of landscape over this surface is tremendously large and probably unique in the Whole world over similar size of land. Superimposed upon this landscape which is mainly the product of physical factors, lies a tremendous variety of land tenure[x] types, chiefly the product of the island, s long and tempestuous history as well as the result of existing legislations. In this paper an attempt will be made to describe and analyse briefly the existing land tenure structure and to explain how it affects physical and particularly non-physical typological criteria, such as, the size of farms, the share of particular forms of labour supply /family, hired, tenancy/, land use, the methods of farming, /mechanization, irrigation, dry farming, etc./ the intensity of farming, agricultural productivity, /production per unit area/ labour efficiency /production per person employed in agriculture/ a.o.o.

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x Land tenure is used in its wider sense to include all kinds of arrangements by which farmers or others hold or control land and the mode they condition its use and occupancy.

The agricultural land of Cyprus /3,232,996 donums/[xx] about 47 % of the total area of the island, falls under the following land tenure types. /see table 1/.

A. PRIVATE LAND

This category consists of 92.36 % of the total agricultural land. It is made up of as many as 70,200[xxx] holdings.[xxxx] Investigations point out that this number of holdings is steadily increasing. The trend is for the small holdings to be increasing and the large holdings to be decreasing in number.
The average size of holding, which is constantly decreasing, is 47 donums. While in 1946 the average size of holding amounted to 54 donums, in 1960 it decreased to 47. This decrease is expected to continue because of industrialization, tourism and urbanization.

Fragmentation of holdings is the most serious drawback in the agricultural development. There correspond about ten plots per operator fragmented and scattered over the entire area of the village or even beyond the administrative boundaries of the settlement. Land fragmentation, however, varies according to geographical region. For instance, in the plain of Chrysochou the average fragmentation is ten plots, in the basin of Morphou 15, in the apple-growing valley of Solia 19 and in the remote, depressed region of Pitsilia over 20.

[xx] donum = 0.33 acre, 0.133 = hectare.

[xxx] Census 1960.

[xxxx] Holding is the unit of operation and includes the family land owned, rented or otherwise operated.

The dispersion of plots forces the Cypriot farmer to traverse long distances. Research carried out in the regions of Karpasisa, Kokkinochoria, Morphou basin and Pitsilia has revealed that the annual distance travelled by the average farmer well exceeds 1,450 miles. The waste of time expressed in months in the villages of Astromeritis, Ayia Trias, Sotira and Palechori is 2.8, 3.5, 3.9 and 6.5 months respectively.

The average size of plot is 4.7 donums. On a regional scale there are, however, differences. In Morathasa the average size is 2.1 donums, in the vine-growing villages 3.2, in Karpasia 6.5 and in the Central plain 8.6 donums.

The shape of the plots is irregular and awkward. This is due mainly to the law of inheritance which permits equal share of similar land to all co-owners. No-doubt this irregular shape impedes the proper cultivation of land.

From the land tenure point of view private lands can be subdivied into the following sub-categories:-

/a/ Holdings operated by their owners.

As many as 38,486 /census 1960/ holdings belong to this category. These, in their majority, are family holdings mainly undersized with negligible employment of hired labour. As many as 32,375 holdings out of the above referred to figure are below 100 donums in area. Crops vary according to geographical region and water

supply. Intensity of farming in the dry lands is low but in irrigated areas it can be very high.
Production per unit area and per person employed is normally low with exceptions in some irrigated areas where highly remunerative crops are cultivated. However, mechanization is not fully employed, althougs its use is increasing; a high cost of production is noticeable due to the small and fragmented holdings.

Possible sub-divisions within this category are: /a/ irrigated and non-irrigated holdings, /b/ small-size, medium-size and large-size holdings.

/b/ Holdings operated by non-farmers.

Land in Cyprus is continuosly bought by non-farmers. Various reasons such as inborn love towards land, fear of inflation, social prestige, aid in obtaining bank credit, speculative motves, etc., lead people, alien to the profession of farmer, to buy or maintain already inherited land. This category of land is exploited through hired labour or agencies. Some part-time farming is also prevalent in certain regions of the Island. As many as 30,883 holdings /census 1960/ belong to people with non-agricultural main occupation. Investigations indicate that part of this land is highly developed particularly if it is irrigated. Some of the best examples of large-scale farming are found in this group. Investment is higher than in the undersized family farms because many of the owners of the farms in this group are business men, lawyers, doctors and wellpaid civil servants. From the economic standpoint this group can be justified but certainly not

from the social. There is also tremendous speculation of land going on at the moment. Land is bought and sold for sheer profit. Its agricultural significance is lost. Research carried out by the author in the plain of Paphos revealed that as many as 11,000 donums have been bought by 152 urban dwellers in the last ten years. An investigation into the purchases of agricultural land in the same region showed that land bought by non-farmers amounted to 85.5 %. This phenomenon is widespread and is obviously a most serious obstacle to rapid agricultural development. This subcategory can be split up /a/ into holdings operated eith the help of hired labour on a commercial basis and /b/ holdings bought for speculative purposes and operated temporatily through tenants.

/c/ Farms belonging to absentee landlords.

The absentee landlords either live abroad or outside the administrative boundaries of village settlements, usually in towns. A considerable number of Cypriots emigrated abroad or immigrated to the towns of Cyprus but they still retain legally their property which is either looked after by some relatives, or is leased, or temporarily abandoned. Although the percentage of absentee landlords varies from region to region it still can be said that as many as 40 % of the entitled owners of a village are absentee landlords. Although this depopulation trend helps land consolidation implementation and the establishment of economically viable units, nevertheless at the moment it constitutes a serious obstacle in the development of agriculture. Elimination of absenteeism will promote continuity of cultivation and will lead to improvement of yield of the land as well as to conservation of its resources.

This land tenure type could be sub-divided /a/ into holdings operated by relatives or friends of the absentee landlord or even tenants and /b/ holdings abandoned for the time being until the return of the owner.

Research in the Paphos plain brought out that from 1850 owners of agricultural land as many as 691 were absentee landlords.

/d/ Holdings tenanted.

This category can be subdivided into /a/ holdings leased and /b/ holdings sharecropped.

As far as leasing is concerned the period of tenancy is very short. Research carried out in the plain of Paphos revealed that 94,7 % of the leased land was for less than two years. The tenants favour at least ten-year contract. The short period of tenancy does not permit the tenant to improve the land through soil conservation or other development works, to invest on it, or to grow perennial crops. Besides the tenant feels utterly insecure.

Sharecropping is rather an anachronistic system of operating the land. Owner and tenant come into certain agreements as to the means of production each vill contribute.

Sample studies indicate that as much as 85 % of the sharecropped land is for a period of 1-2 years.

Fortunately this system is not much preferred and is on the decline. Since 1946 there has been 43,7 % decline in the sharecropped land. It is worthwhile mentioning that if a tenant exerts much effort and works hard to in-

crease production by 50 % his share at the end will be only 25 %. For this reason productivity and investment are discouraged.

The grant of land on lease or sharecropping raises the question of relations between the landowner and the tenant. The greater the harmony of these relations, the more efficient will be the process of cultivation and the greater the quantity and the bette the quality of the yield therefrom. The Republic of Cyprus is considering very seriously the introduction of a Land Lease Art. A tenancy legislation can provide for continuous farming operations, sustained production and protection against underserved eviction. The tenant will be encouraged to make all the improvements he possibly can and develop the agricultural resources. Insecurity on the other land and in particular lack of adequate compensations for improvements and disturbance of occupancy, will not only discourage initiative but may permanently damage the land by intiting soil exhausting practices.

This category occupies 7.75 % of the cultivable land. To this figure, however, should be added the lands of Church, Monasteries, and Evqaf /the Moslem Religious properties/ as well as the State lands which are eleased to tenants.

B. CHURCH, MONASTERY AND MOSLEM RELIGIOUS PROPERTIES.

In this category are included the properties that belong to the Archeishopric, the three Sees, the monasteries, the village Christian Churches as well as the Moslem

Religious properties. These properties originated mostly from generous royal donations in Byzantine days or donations of pious Christians or Moslems. Many properties were also granted to the Monasteries during the Turkish Times to avoid confiscation or usurpation. Whereas formerly donations were very large, today they are rare and of little value.

Church and Monastery land amounts to 186,090 donums whereas the Moslem Religious Properties reach the figure of 23,522. Almost the whole of the land of this category is leased. Optimum utilization of Church and Evqaf lands raises a delicate problém for Cyprus because of constitutional provisions prohibiting their compulsory acquisition.

Fortunately the tendency is for the Church land to be sold. It is no surprise, therefore, that the area of this category is steadly diminishing. Investigations at a few small settlements of the Western seaboard revealed that whereas in 1950 the Church owned about 26,000 donums, in 1969 it only owned 8,000 donums.

As a result of this tendency the sale of Church lands tends to accelerate development.

C. STATE LAND.

The State land can be divided into cultivable and uncultivable land. Table 1 shows details concernink the areas under State land. In the first sub-division are the Paphos Chiftlicks /11,842 donums/ and lands reclaimed from micnor

forests /24,660 donums/. The Paphos chiftlicks were requisitioned by the Government in 1948. The decision to acquire these lands was made because of the inherent fault of absenteeism and the consequent subleasing to individuals who mainly exploited the land and water for personal profit without any incentive to maintain and develop the properties in accordance with sound conceptions of good husbandry. The Government undertook various measures such as construction of irrigation works, implementation of land improvement works, enstablishment of permanent plantations and establishment of intensive livestock enterprises.

The land is leased to the tenants' farming co-operative societies who sublet to their members with the approval of the Government. Although there is no co-operative basis in production, these societies play an important role as they enable the farmers to obtain long and short term credit more easily. They offer many other facilities as well.

The leases are long enough /in one chiftlick up to 30 years/ to give the farmer the sense of stability and allow him to carry out improvements on the land he works.

In the reclaimed forest lands leasing is not as longterm as in the four chiftlicks.

The non-cultivable land of this group is mostly made up of land obtained from cleared forests or land named "hali" which remained unregistered during the national registration of 1909-1929 and therefore at the end stayed

as Government land. Hali lands, as they stand now, are of only limited interest for they consist of mediocre quality lands under scrub and sometimes are completely uncultivable i.e. rocky lands, beaches, etc. Squatting, however, on hali lands and cleared forests is a permanent phenomenon but the area varies from year to year. It is, besides, difficult to record all the cases of squatting and even more difficult to determine the areas.

D. COMMUNAL LAND.

This category known as "Merras", the relics of the Turkish occupation in Cyprus, consists of compact grazing lands usually at small distances from the village settlement. This peculiar type of land, very small in area, /44.000 donums/ is owned communally and its exploitation is left only to shepherds.

According to the Law the Communal land belongs to the inhabitants of the village and no person can acquire at any time any private or exclusive right to the communal property. Land use can change in this category only if two-thirds of the male inhabitants who have attained the age of twenty-one years decide that its existing use no longer satisfies them.

E. CO-OPERATIVE FARMS.

There is only one co-operative farm in Cyprus. It is made up of about 820 donums of land. It has been formed by a group of progressive farmers after the second world war. Similar co-operatives were set up in other parts of Cyprus but one after the other were dissolved.

F. MIXED TENURES.

The law of inheritance has created a great number of co-ownerships which to-day constitute a great obstacle in the programming and development of agriculture. A donum of land or a tree may belong to various owners who are registered with the Registration Dept. There is a case in Cyprus that property has been sub-divided in such a manner over considerable time that to-day the share of its owners has as denominator a figure above 40,000,000, There are many cases that a plot of land belongs to one owner, the trees on it to another and the water rights to a third. It is possible that a tree may belong to an individual, whereas the land may be forest or belong to the State. It is calculated that 20-25 % of the cultivable land is owned in undivided shares.
Farmers consider these lands under undivided shares as second class lands and consequently neglect their-exploitation. Since it does not belong wholly to the farmer apart from 1/15 or 1/50, or 75/3,000,000 of it, no doubt he will not try hard to exploit it. So a considerable part of the land is neglected and left to the agents of denudation.

Even if undivided land is cultivated, it is usually not exploited with the most suitable crop because of disagreements among the co-owners. Three or four co-owners might prefer three or four different crops.

Undivided land is not usually improved through soil conservation or irrigation works because not all co-owners might agree, not to mention that even some might be absentees. No investments are made over this land, the fertility diminishes and production and productivity are affected.

Conclusion

Through this paper it has been endeavored to present the land tenure types prevalent over modern Cyprus. Many of these types are the relics of the past. They do, however influence considerably the present day agriculture of Cyprus despite the fact that efforts are being exerted through legislations to establish a new land tenure structure though which agriculture will be rationalized.

The various land tenure types, some of which are very anachronistic, affect considerably physical and non-physical typological criteria. Two holdings of the same size adjacent to each other with the same physical background can give completely different results simply because they belong to two different owners. One might be an absentee landlord or a person alien to the profession of farmer for whom there is little economic pressure to use his land intensively, not to mention that it can be totally neglected; the other might be an owner-operator whose living depends entirely upon the proper exploitation of his holding.
Even a comparison between private leased lands and State or Church leased lands brings forward different results.

The mapping of land tenure types in Cyprus particularly on a large-scale map will show a mosaic. Even such a mapping will be highly difficult, if not impossible, because of the excessive fragmentation and the mixed tenures prevailing in Cyprus. The paper aims, however, at pointing out how powerful is the factor of land tenure in Cyprus and how much the existing land tenure structure inpedes full, efficient use of the land, labour force as well as other resources at the command of agriculture. In Cyprus who owns the land counts much. This is not a final classification of agricultural types. It is only an attempt to show that on the basis of land tenure there is, at least in Cyprus, ground for such a classification.

Table 1. L A N D T E N U R E I N C Y P R U S

LAND TENURE CATEGORIES	A R E A /In donums/					
	Agricultural land			Uncultivated		Total
	Area per category	% of category	% of total agricultural land	Area	% of uncultivated land	
A. PRIVATE LAND						
/A/ holdings operated by their owners	1.496,089	46.28		---		1,496,089
/b/ holdings operated by non-farmers	1.200,522	37.13		---		1,200,522
/c/ holdings belonging to absentee landlords /included in Ab, Ad,Ae/	---	---		---		---
/d/ holdings tenanted /leased or share-cropped/	250,508	7.75		---		250,508
/e/ Neglected private holdings	---	---		1,141,651	58.56	1,141,651
/f/ Land belonging to corporations, companies Government farms and other institutions. /liable to change use at any moment-some vacant agricultural land/.	38,943	1.20	92.36			38,943
B. CHURCH, MONASTERY MOSLEM RELIGIOUS PROPERTIES						
Church and Evqaf	209,612	6.48	6.48			209,612
C. STATE LAND						
Cultivated land	36,502	1.13	1.13			
Uncultivated land				764,000	39.19	800,502
D. COMMUNAL LAND						
Merras				44,000	2.25	44,000
E. Co-OPERATIVE FARMS	820	0.03				820
F. MIXED TENURES						
Undivided shares /included in Aa,Ab,Ac, Multiple ownership /Ad, Ae and B/						
	3,232,966	100 %	100 %	1,949,651	100 %	5,182,647

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ÜBER DIE AUSBILDUNG VON GEMEINDENKREISEN IM KOMITAT BARANYA

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Die Zielsetzung unseres Symposiums bezieht sich auf ein sehr wichtiges Themenkreis. Die ländliche, grossenteils kleine, in der Versorgung zurückgebliebene Siedlungen können mit der sprunghaften Entwicklung des wirtschaftlichen und gesellschaftlichen Lebens nicht Schritt halten und sind deshalb immer mehr ausserstande ihren Einwohnern eine zeitgemässe, den heutigen Anforderungen entsprechende Lebensform sichern zu können. Deshalb anerkennt man heute schon fast in jedem Lande der Welt die Rekonstruktion des Siedlungsnetzes, als eine unumgängliche Notwendigkeit. Und dass bei der Vorbereitung dieser Rekonstruktion die Mitwirkung der Geographen unentberlich ist, benötigt bestimmt keinen besonderen Beweis.

Die Siedlungsgeographen sind dieser Aufgabe bewusst und viele nahmen uach bisher teil an Verfertigung der Siedlungs-Rekonstruktionspläne, von welchen bei manchen auch die Werwirklichung bereits im Gange ist.

Die Berichte unseres Symposiums sollen uns diesbezüglich mit einigen Behauptungen, sowie bisherigen Erfahrungen bekannt machen. Ich bin der festen Überzeugung, dass diese Darlegungen nicht nur unsere Arbeit vervollständigen werden, sondern auch zu Klärung der zur Zeit noch strittigen theoretischen und methodischen Fragen beitragen werden.

Es ist kein Zufall, dass das Problem der ländlichen Siedlungen gerade hier, in Pécs, bzw. im Komitat Baranya von der Organisationskommission der Veranstaltungen unserer territorialen Konferenz, als Beratungsstoff für ein Symposium bestimmt wurde. In diesem Teile Ungarns - näher im Komitat Baranya - ist nämlich die Dichte der ländlichen Siedlungen im Lande die Höchste, und so meldeten sich die, durch dieser dichten Besiedlung verursachten Schwierigkeiten hier schon vor mehreren Jahrzehnten, besonders aber seit der Befreiung des Landes, also seit 1945.

Die Lage des Siedlungsnetzes zeigen uns im Zeitpunkt der ersten Volkszählung nach dem Kriege, also im Jahre 1949 folgende Angaben:

Der Flächeninhalt des Komitates beträgt 4530 km^2. Auf dieser Fläche hatte das Komitat im Jahre 1949. 326 Siedlungen, und zwar 2 Städte und 324 Dörfer. Die Siedlungsdichte betrug also in unserem Komitate /die Zahl der Siedlungen mit der Fläche des Komitates verglichen/ 7,7/100 km^2.

Diese Verhältniszahl übersteigt mehr als zweimal den Landesdurchschnitt /3,8 Siedlungen/100 km^2/, und mehr als fünfmal den gegenseitigen Extremwert /1,5 Siedlungen/100 km^2 im Komitat Bács-Kiskun/.

Ich erlaube mir hier erwähnen zu dürfen, dass ich diesmal unter dem Begriff "Siedlung" nur jene selbständige Siedlungseinheiten verstehe, welche mit eigenem Name und mit umgegrenzter Fläche, also als Städte, oder Dörfer in der Matrikel eingetragen sind.

Infolge der hohen Siedlungsdichte war der durchschnittliche Flächeninhalt und die deurchschnittliche Bevölkerungszahl der Dörfer im Komitat sehr niedrig, und zwar betrug der durchschnittliche Flächeninhalt der Dörfer - die Angaben der Städte ausser Acht gelassen - 1301 Haktar, /fast genau die Hälfte des Landesdurchschnittes mit 2605 Hektar/; der Komitatsdurchschnitt der Einwohnerzahl war 749 /der des Landesdurchschnittes aber 1874/.

Die Forschungen bestätigten auch wiederholt unbestreitbar, dass die viele kleine Dörfer mit engbegrenztem Terrain und geringer Einwohnerzahl eine gewaltigere wirtschaftliche Entwicklung zurückhalten, sie erschweren die entsprechende Standortbestimmung neuer Industrieanlagen, wie auch die Entfaltung der Landwirtschaftlichen Grossbetriebe. Ausserdem schliessen sie jede Möglichkeit aus, um die Versorgung der waltungseinrichtungen auf ein - wenn auch nur annähernd zeithaftes Niveau - erheben zu können.

Diese Erkennung gab den Siedlungsgeographen folgende Aufgaben:

1/ Die Siedlungsverhältnisse unseres Gebietes mussten gründlich analysiert,

2/ die Faktoren und die Gesetzmässigkeiten der Gestaltung des Siedlungsnetzes entdeckt, und schliesslich,

3/ eine Konzeption verfasst werden zur Umgestaltung der ungünstigen Siedlungsstruktur und zur Ausbildung eines, die soziale und kulturelle Entwicklung ermöglichenden Siedlungsnetzes.

Mit diesen Erwägungen wurde vor etwa 20 Jahren im Transdanubischen Wissenschaftlichen Institut der Ungarischen Wissenschaftlichen Akademie mit den Vorschungen begonnen und im Jahre 1954 eine Studie /zugleich ein Entwurf/ verfertigt. Als Grundprinzip wurde angenommen, dass die Verbesserung der Siedlungsverhältnisse im Komitat nicht mit Zwangsmassnahmen, sondern mit planmässigen Beeinflussungen durchgeführt werden, die Umgestalltung des Siedlungsnetzes also als Erfolg einer langfristigen T-tigkeit entstehen sollte.

Die Abhandlung - welche die Lage, zugleich die Fehler und die Mangelhaftigkeiten des Baranyaer Siedlungsnetzes ausführlich und systematisch zu aufarbeiten versuchte - stellt vor allem fest, dass die Lösung der Probleme zwei Arbeitsphasen benötigt. In der ersten sollten die Mangelhaftigkeiten des damaligen Siedlungsbestandes beseitigt, in der zweiten aber die Dorfsdichte aufgelöst werden, die zur Zeit die erwünschte Entwicklung der Dörfer, und dadurch das Erhöhen des Lebensniveaus der Dorfbevölkerung hemmt und verhindert.

Die Aufgaben in der ersten Arbeitsphase wurden folgenderweise festgesetzt:

1/ Vereinigung der zusammengebauten, bzw. der nahe liegenden Dörfer.

2/ Umorganisierung der Siedlungen, welche vorher konstitutionell nicht selbständige Verwaltungseinheiten waren zu immatrikulierten Dörfern.

3/ Abstellung der konstitutionellen Selbständigkeit der Siedlungen unter 300 Einwohner.

4/ Erweiterung des Städtenetzes.

Die Abhandlung wurde mit einem ausführlichen Vorschlag ergänzt, in welchem die Aufgaben, in konkreter Form, - bis auf die einzelnen Siedlungen detailliert - mit voller Entschiedenheit aufgezählt wurden.

Die Studie wurden von den örtlichen Organen gründlich geprüft, besprochen, schliesslich unverändert - als Unterlage zu Berichtigung des Siedlungsbestandes - angenommen, benutzt und bis heute im grossen Teile Durchgeführt.

Mit diesem Vorgang parallel forderte aber die rasche Entwicklung des gesellschaftlichen und wirtschaftlichen Lebens auch die dringende Lösung der Aufgaben velche wir ursprünglich in die zweite Arbeitsphase eingereiht haben, welche sich also nicht die Berichtigung der bestehenden Lage, bzw. der -, infolge der spontanen Gestaltung entstandenen - Siedlungsverhältnisse, sondern die Auflösung des ungünstig dichten Siedlungsnetzes zum Ziel setzten.

Diese Forderung wurde besonders dringend, als im Jahre 1961 die sozialistische Umgestaltung der Landwirtschaft auch in unserem Komitate im wesentlichen zu Ende ging. In jedem Dorf wurde nämlich eine - in vielen Dörfern sogar zwei-drei - selbstständige landwirtschaftliche Produktionsgenossenschaften gegründet, deshalb konnte man in den Dörfern mit kleiner Flur keine landwirtschaftliche Grossbetriebe ausbauen. Man musste also die Vereinigung der benachbarten Genossenschaften anstreben, damit diese zu Ausnützung der Vorteile des Grossbesitzes

ein genügendes Betätigungsfeld erreichen.

> Weil aber die Betätigung der Genossenschaften auch die Einheit der Verwaltung voraussetzt, muss mann - möglichst gleichzeitig die - mit den wirtschaftlichen Gebietseinheiten übereinstimmenden Verwaltungs-Gebietseinheiten ausbilden. Die bestimmenden Zentren dieser Kreise sollten gewaltig gefördert werden, dass sie eine Anziehungskraft auf dei in den selben Kleinkreis gehörenden kleinen Dörfer ausüben. Die entwicklungsunfähigen Dörfer sollten aber planmässig beeinfluust werden, dass diese je eher absterben und dadurch das Siedlungsnetz des Komitates eine entwicklungsfähige, den wirtschaftlichen Fortschritt fördersame Struktur bekommt.

Zur Beeinflussung des Werdeganges der Siedlungen mussten vor allem alljene Faktoren und Wirkungskräfte entdeckt werden, velche die Gestaltung der Zahl und der Verteilung der Bevölkerung, so die natürliche Bevölkerungsbewegung, wie auch die Migration, speziell in unserem Bereiche bestimmen. Mit grossen Umsicht und Ausführlichkeit wurde die Gegenwirkung zwischen der Bevölkerungsbewegung und den verschiedenen wirtschaftlichen, sozialen und kulturellen Vorgänge auf eine Frist von fünfzig Jahren, und zwar von 1900 bis 1949 gründlich geprüft. Die Erfolge dieser Untersuchung wurde im weiteren, bei Bestimmung der nötigen Massnahmen zu Verbesserung des Siedlungsnetzes verwertet.

Laut weiteren Untersuchugen konnte man festlegen, dass die Sicherung der Lebensfähigkeit und der zeitgemässen Entwicklung der Siedlungen in unserem Bereiche wenigstens 2.000 Einwohner und eine Bodenfläche von mindestens 3.000 - 5.000 Hektar benötigt.

Auf Grund der Ergebnisse und Lehren alldieser Vorarbeiten wurde mit der Verfertigung eines ausführlichen, konkreten Entwurfes begonnen. Wir stellten uns zur Aufgabe, dass wir vor allem die Siedlungen bestimmen welche man - unserer Meinung nach - im Komitat, zu Verwirklichung ihrer wirtschaftlichen und kulturellen Funktionen nicht nur unbedingt erhalten, sondern auch weiter fördern und vergrössern müsste. Diese Siedlungen sollten als Zentren der ausbildenden "Kleinkreise" mit allen nötigen Institutionen eingerichtet werden, mit welchen das inhaltsreiche Leben ihrer Bewohner gesichert werden kann, damit sie eine entsprechende Anziehungskraft auf die Bevölkerung der Nachbarsiedlungen ausüben. Diese Anziehungskraft sollte auch mit verschiedenen Begünstigungen - Preisnachlass bei Ankauf der Bauplätze und Baumaterialen, günstige Anleihe beim Hausbau usw. - gestärkt werden. Die anderen Siedlungen aber sind als "Nebendörfer" zu behandeln mit der Absicht, bei diesen einen Absterbungsprozess zu beschleunigen. Die weitere Entwicklung sollte man bei diesen hemmen, die Zuteilung der Baubewilligungen erschweren, eventuell die Ausfertigung solcher Bewilligungen gänzlich einstellen.

Nach Festlegung dieser Zielsetzung begann die Ausarbeitung des Planes zu Umgrenzung der Kleinkreise.

Bei der langfristigen Arbeit wurden vor allem die schon vorherigen wirtschaftlichen, sozialen, sanitären, kulturellen und Verwaltungskreise auf Gemeindeniveau gründlich studiert. Insgesamt sechzehn Kreise gaben Möglichkeit um eine Methode zur Planung von territorialen Einheiten ausarbeiten zu können.

Nach dem wurden in einem jeden Dorf - auch im kleinsten - die Beziehungen zu den Nachbarsdörfern, besonders zu den naheliegenden, ausgewälten Zentraldörfern sehr umsichtsvoll geprüft und bewertet. Nicht nur die geographischen Verhältnisse, die wirtschaftlichen und Verwaltungsmöglichkeiten, sondern auch die familiäre, die Religions- und Nationalitätenbeziehungen und überhaupt alles wurde auf die Waage gelegt, was die Entscheidung erleichtern konnte, um ein jedes Dorf in den am besten entsprechenden Kleinkreis einreihen zu können und der Entwurf, welcher auf Grund dieser Untersuchungen verfasst wurde, konnte auch tatsächlich die grosse Mehrheit der Kleinkreise unbestreitbar umgrenzen. Nur bei einigen Dörfern blieb die Einteilung in Frage. Auf Ort und Stelle wurden auch diese strittigen Probleme, mit Hilfe umfangreicher Besprechungen geklärt, und so entstand dann ein entgültiger Plan, welcher die damaligen 324 Dörfer des Komitates in 82 territoriale Wirtschafts- bzw. Verwaltungseinheiten /also in 82 Gemeinden/ eineilte /statt den früheren 272./ /Siehe Abb. No 1 und 2./

Die durchschnittliche Angaben der geplanten Gemeinden waren /laut damaligem Status/ folgende:

Zahl der zu einer Gemeinde gehörenden Dörfer: 3,95
Zahl der zu einer Gemeinde gehörenden Einwohner: 3.066
Durchschnittlicher Flächeninhalt: 5.187 Ha
Durchschnittlicher Flächeninhalt des Ackerfeldes: 3.063 Ha
Durchschnittliche Entfernung der Nebendörfer vom Zentraldorf: 4,3 km

Diese Durchschnittswerte entsprechen den, bei Beginn der Arbeit festgelegten Basiswerten.

Der Plan wurde vorerst den Fachleuten zur Diskussion vorgestellt, dann von den örtlichen, sowie den obrigen Behörden durchprüft, besprochen und schliesslich angenommen.

Im Entschluss des Komitatsrates wurden die Prinzipien und der Verlauf der Durchführung des Planes - wesentlich den Zielsetzungen der Grundkonzeption entsprechend, die Stufenfolge und die Humanität weitgehend in Betracht gezogen - folgenderweise niedergelegt:

a/ Die Umgestaltung des Siedlungsnetzes soll stufenweise, binnen 10-12 Jahren durchgeführt werden.

b/ Vor allem muss man die Basis zur wirtschaftlichen Tätigkeit der Gemeinden sicherstellen, die landwirtschaftlichen Produktionsgenossenschaften vereinigen.

c/ Mit diesem Prozesse parallel muss man die wirtschaftlichen, sozialen, kulturellen und Verwaltungseinrichtungen in den Zentraldörfern in dem Masse fördern, dass diese den Ansprüchen des ganzen Kleinkreises entsprechend genüge leisten können.

d/ Nach dem folgt die Ausbildung der Verwaltungseinheiten. Die, infolge der Umorganisation entlassende Angestellten müssen in entsprechende Posten versetzt werden, damit die Bediensteten keinen Schaden leiden.

e/ Bei dem ganzen Verfahren muss die Anforderung der "Freiwilligkeit" zur vollen Geltung kommen. Die Vereinigung der LPG, sowie die Ausbildung der Kreise kann nur mit Einverständniss der Dorfbevölkerung durchgeführt werden. Dieses Einverständniss darf allein durch Überzeugung beeinflusst werden.

Nach diesen Antezedenzien wurde am 1. Februar 1962. mit der Durchführung des Entwurfes begonnen und noch in demselben Jahre aus 67 Dörfern 20 Gemeinden ausgebildet.

Die Durchführung hatte dann - im folgenden - keinen gleichmässigen Gang. /Siehe Tabelle No 1./

Nach dem ersten Jahr /also 1962/ kam eine zweijährige Periode, in welcher zusammen nur aus 13 Dörfern 4 Gemeinden gebildet wurden. Während dieser Aussetzung sollte nämlich die Tätigkeit der neuen Gemeinden gründlich beobachtet und geprüft werden. Die Auswertung der Erfahrungen brachte einen eindeutig positiven Erfolg, das Verfahren erwies sich zur weiteren Arbeit geeignet.

Folgend entstanden im Jahre 1965. aus 63 Dörfern 16 Gemeinden, 1966. aus 80 Dörfern 21 Gemeinden, von welchen eine /das Dorf Szigetvár mit 4 Nebendörfern/ zu Stadt erklärt wurde.

Dann kam wieder eine 2 jährige Vorbereitungsperiode /1967 und 1968/, nach welcher am 1. Januar 1969. aus 86 Dörfern 25 Gemeinden ausgebildet wurden.

Im Jahre 1970 wurden noch vier Gemeinden betreffend Korrektionen durchgeführt.

Heute haben wir also 102 Gemeinden /statt den früheren 272/. Von den Gemeinden bestehen 17 aus einem Dorf, 85 sind Kleinkreise, in welchen mehrere Dörfer eine Verwaltungseinheit bilden. /Den heutigen Stand zeigt uns die Abbildung No 3./

Gestaltung der Gebietseinheiten im Komitat Baranya
1962 - 1971

Zeitpunkt	Zahl der							Durchschnittszahl der			
	Siedlungen insgesamt	Dörfer mit selbstständigem Rat	Kreiszentren	Nebendörfer	Dörfer zusammen	Verwaltungseinheiten		Einwohner in den		Fläche der	
						Gemeinden	Städte	Dörfern	Gemeinden	Dörfer	Gemeinden
1.I.1962.	325	229	42	52	323	271	2	749	893	1.301	1.550
1.I.1963.	325	182	52	89	323	234	2	742	1.024	1.300	1.791
1.I.1965.	325	169	55	99	323	224	2	724	1.045	1.300	1.875
1.I.1966.	325	130	60	133	323	190	2	719	1.222	1.300	2.212
1.I.1967.	322	76	72	171	319	148	3	692	1.499	1.299	2.700
1.I.1969.	319	21	85	210	316	106	3	702	2.094	1.312	3.910
1.I.1971.	319	17	85	214	316	102	3	701	2.172	1.312	4.063

Tabelle No 1.

Seit Anfang dieses Jahres - also des Jahres 1971 - hält man wieder eine Pause-Periode in welcher neben den Erfahrungen auch die bisherigen Erfolge geprüft und ausgewertet werden sollen.

Diese Ausvertrug ist im Gange, ganz ausführlich können deshalb die Erfahrungen noch nicht vorgezählt werden. Wir können allerdings festlegen, dass die Rekonstruktion der Siedlungsstruktur, bzw. die Umgrenzung der territorialen Wirtschafts- und Verwaltungseinheiten auf Gemeindeniveau die vorgesetzten Ziele mehr, oder weniger schon jetzt erreicht hat, sowie dass die Ausbildung der Kleinkreise ohne bemerkungswerten Schwierigkeiten durchgeführt werden konnte.

Alldas beweist, dass die Leitprinzipien - welche der Komiterat entschlossen hat und welche während des ganzen Prozesses streng befolgt wurden - richtig waren und auch in der Zukunft eingehalten werden müssen. In den Einzelheiten forderte der Plan während seiner bisherigen Durchführung nur ganz wenig bedeutungslose Berichtigungen.

Laut den Untersuchungen können bis heute die Ergebnisse folgenderweise zusammengefasst, werden:

1/ Die Vereinigung der landwirtschlichen Produktionsgenossenschaften geschah in geplanter Weise. Am Beginn der Umgestaltung der Siedlungsstruktur waren in den Dörfern des Komitates 324 Genossenschaften tätig. Der durchschnittliche Flächeninhalt des Gesamtbodens betrug 705 Ha, die durchschnittliche Fläche des Ackerfeldes 499 Ha. Zur Zeit haben wir im Komitate 97 Genossenschaften, mit 2991 Ha durchschnittlicher Gesamtboden- bzw. mit 1549 Ha durchschnittlicher

Ackerfläche. Die meisten der Genossenschaften haben also jetzt schon manche Möglichkeiten um sich die Vorteile des Grossbetriebes sichern zu können.

2/ Die Tendenz der Abwanderung aus den kleinen ländlichen Siedlungen veränderte sich. Das Ziel der Umsiedlung aus den Dörfern ist immer weniger die Stadt, die Dorfleute wandern in den letzten Jahren immer mehr aus den kleinen Dörfern in das Gemeindezentrum.

Wenn wir die Gemeinden des Komitates nach der Einwohnerzahl gruppieren, bekommen wir die Angaben der Tabelle No 2. Diese zeigen uns, dass der Entvölkerungsprozess der lebensunfähigen, kleinen Dörfern an Geschwindigkeit immer mehr zunimmt. Im Jahre 1960 war die Zahl der Dörfer unter 100 Einwohner nur noch 3, am 1. I. 1970. hatten wir schon 8 solche Förfer und eines von diesen starb im Jahre 1970 gänzlich aus. /Es ist das Dorf Gyürüfü, welches im Jahre 1960 noch 193, bzw. am 1.I.1970. 37 Einwohner hatte. Von hier wanderte im Monat November des Jahres 1970auch die letzte Familie ab, am 1.I. 1971. wohnte hier also nicht ein Mensch mehr./

3/ Bedeutend sind die finanziellen Folgen der Rekonstruktion. Die Verwaltungskosten - auf einen Einwohner gerechnet - überstiegen in unserem Komitate im Jahre 1960 mit 46,5 % den Landesdurchschnitt, im Jahre 1968 aber nur noch mit 32,1 % Numerisch gerechnet bedeutet auch das schon eine Summe von jährlich mehreren Millionen Forint.

Die finanzielle Auswirkung der Rayonierung können wir aber selbstverständlich heute nur noch vorherig berechnen. Die Durchführung der Umgestaltung und die Anfangszeit benötigt nämlich Mehrkosten in der Verwaltung, welche später stufenweise zurückgehen werden.

4/ Das Ersparnis bei den Kosten bedeutet kein niedrigeres - sondern im Gegenteil ein höheres - Niveau in der Verwaltungstätigkeit. Die Zahl in der Gemeindeverwaltung beschäftigten Angestellten wurde, infolge der Ausbildung der Kleinkreise insgesamt mit 40 % weniger, die Zahl der Dispositionsberechtigten aber mit 25 % mehr, als vor der Rekonstruktion. Man braucht nämlich jetzt weniger Hilfsarbeiter /Amtsdiener, Aufräumer usw./, so konnte - auch neben Verminderung die Zahl der Beschäftigten insgesamt - die Zahl der Beamten erhöht werden.

Dazu konnte man auch den Gehalt der Angestellten wesentlich, und zwar mit rund 20 % erhöhen. Demzufolge erhöhte sich auch die Geschultheit der Bediensteten. Die Proportion der maturierten Angestellten erhob sich bei den in der Gemeindeverwaltung Tätigen von 20 auf 40 %m gleichzeitig sank der Anteil der jenen /auch das Hilfspersonal dazugerechnet/ die nicht wenigstens die achtklassige allgemeine Schule absolviert haben, von 32 auf 5 %.

5/ Die Verwaltung entfernte sich, infolge der Einstellung vieler kleinen selbstständigen Gemeinden dennoch nicht in bedeutendem Masse von der Bevölkerung. In vielen Dörfern, wo das Verwaltungsamt abgestellt wurde, hat man nämlich einen Amtswalter eingesetzt zu Erledigung der alltäglichen, administrativen Angelegenheiten.

6/ Die Budgetersparnisse, sowie die Konzentrierung der materiellen Kräfte mehrerer Dörfer erhöhten wesentlich die Entwicklungsmöglichkeiten. Mit planmässiger, rationeller Anwendung dieses konzentrierten Potenziale konnte man schon bisher - besonders in den Gemeindezentren - bedeutungsvolle soziale und kulturelle Einrichtungen schaffen.

Zahl der Dörfer nach der Einwohnerzahl gruppiert

Zahl der Einwohner	31. I. 1949.		1. I. 1960.		1. I. 1966.		1. I. 1970.		Änderung zwischen 1960 - 1970 /1970 - 100 %/
	Zahl	%	Zahl	%	Zahl	%	Zahl	%	
	der Dörfer								
> 100	1	0,3	3	0,9	5	1,6	8	2,5	266,7
101 - 200	18	5,6	21	6,5	31	9,7	32	10,1	152,4
201 - 300	37	11,5	45	13,9	45	14,1	42	13,3	93,3
301 - 500	78	24,1	83	25,4	79	24,7	88	28,0	106,0
501 - 1.000	127	39,3	112	35,0	104	32,8	92	29,1	82,1
1.001 - 2.000	43	13,3	39	12,1	34	10,6	38	12,0	97,9
2.001 - 5.000	17	5,3	18	5,6	19	5,9	15	4,7	83,3
5.001 <	2	0,6	2	0,6	2	0,6	1	0,3	50,0
Zusammen	323	100,0	323	100,0	319	100,0	316	100,0	97,8

Tabelle No 2.

7/ Das Zentraldorf kann man aus den Nebendörfern - mit wenig Ausnahmen - durchschnittlich binnen einer halben Stunde zu Fuss erreichen. In ein jedes Zentraldorf führt eine ausgebaute Strasse. Die Zentraldörfer sind heute schon fähig den verschiedenen Bedienungsansprüchen Genüge zu leisten und haben auch entsprechende Läden und Gastwirtschaften. Fast in jedem Zentraldorf finden wir heute schon ein - auch die Ansprüche der Nebendörfer in Betracht genommen. - entsprechendes Kulturhaus und Kino.

Aber nicht nur die Zentraldörfer wurden gefördert, sondern in bescheidenerem Masse auch die Nebendörfer. Diese wurden von den Komitatsbehörden in zwei Gruppen geteilt je nach dem, ob das Dorf noch eine längere Zeit bestehen soll, oder aber in kurzer Zeit absterbt. Für eine jede Gruppe sind Entwicklungsnormen festgelegt und diese vor Auge gehalten wurden bzw. werden die einzelnen Nebendorfer gefördert.

Bei der Durchführung der Rayonierung mussten selbstverständlich auch manche Schwierigkeiten überwunden werden. Vorerst der - bei den Dorfbewohnern gutbekannte - Konservativismus, die feste Anhänglichkeit am Alten, am Gewöhnten, sowie ein schlechtverstandener Lokalpatriotismus wirkte verweilend. Ab und zu verursachten diese Gefühlsmotive auch etwas Unzufriedenheit, zu einer öffentlichen Widerrede kam es aber nie.

Später, als die Verteile der Kleinkreise klar wurden, verschwanden auch diese moralische Hemmungen gänzlich, vielmehr nach ihren Platz eine gewisse Ungeduld ein, die Einwohner der Dörfer drangen immer mehr selbst auf die Durchführung der Rekonstruktion.

PUBLIKATIONEN DES VERFASSERS

bezüglich des Themas

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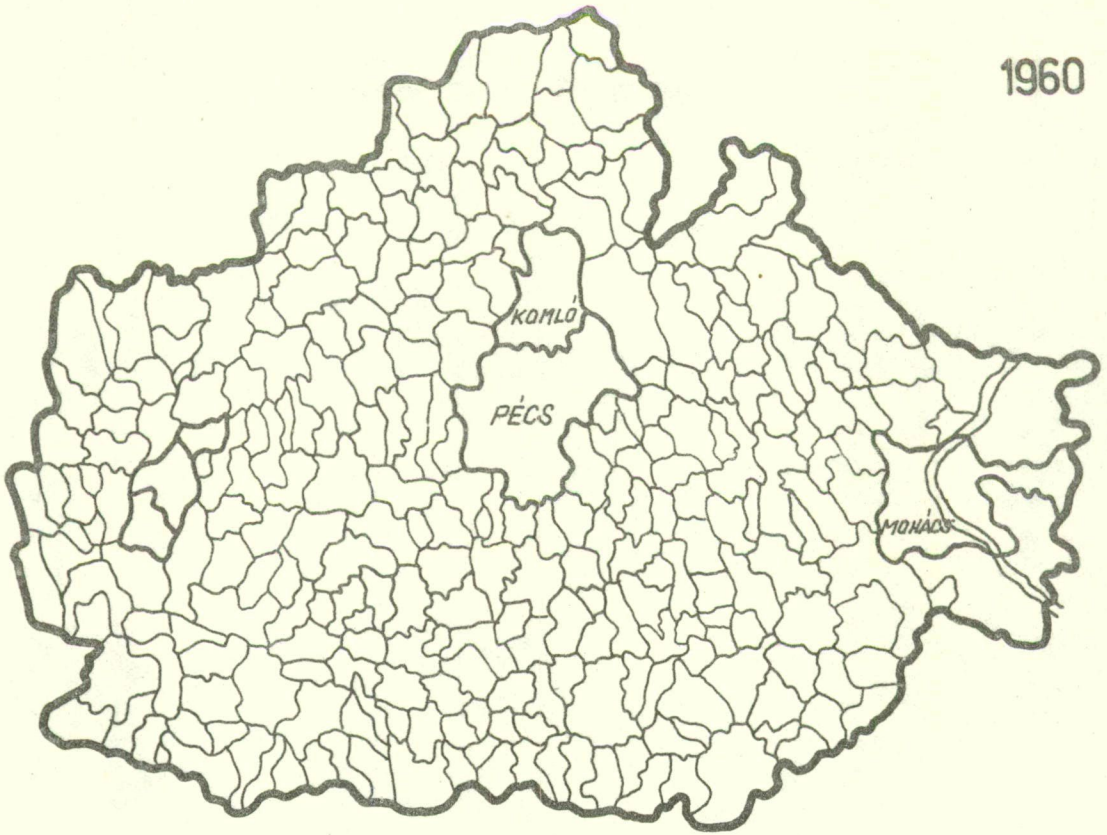
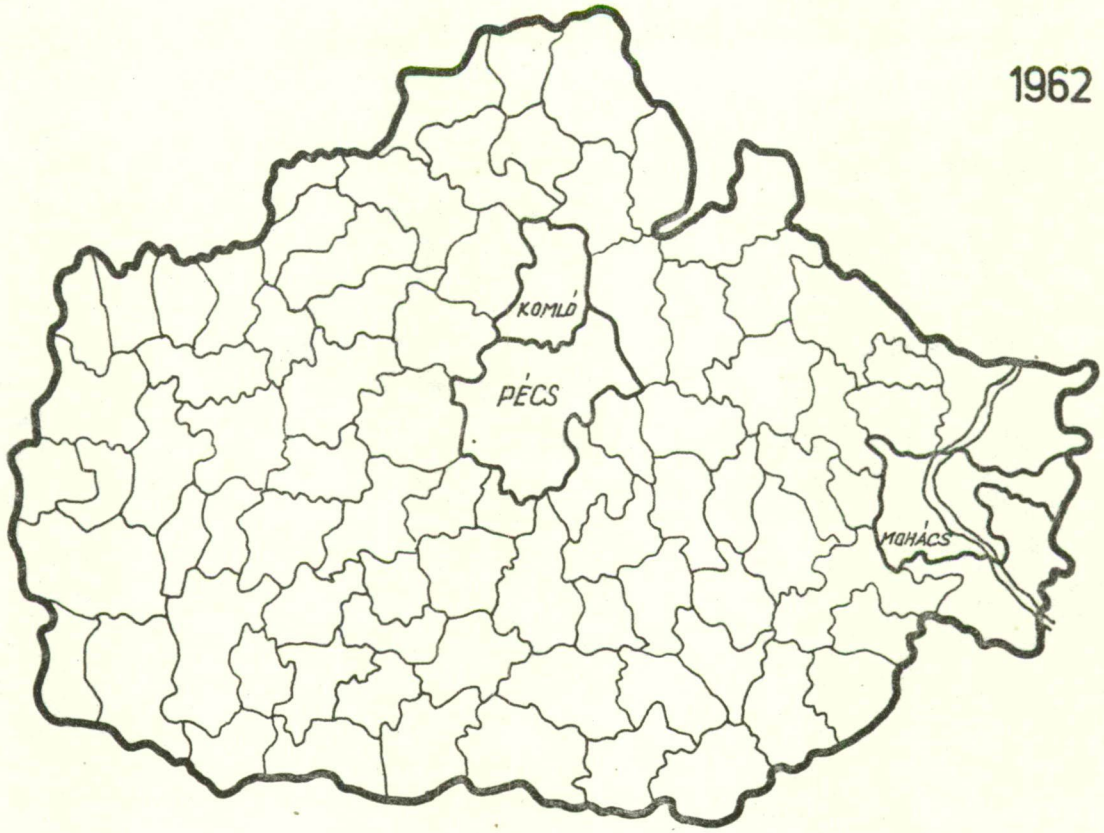


Abb. 1.



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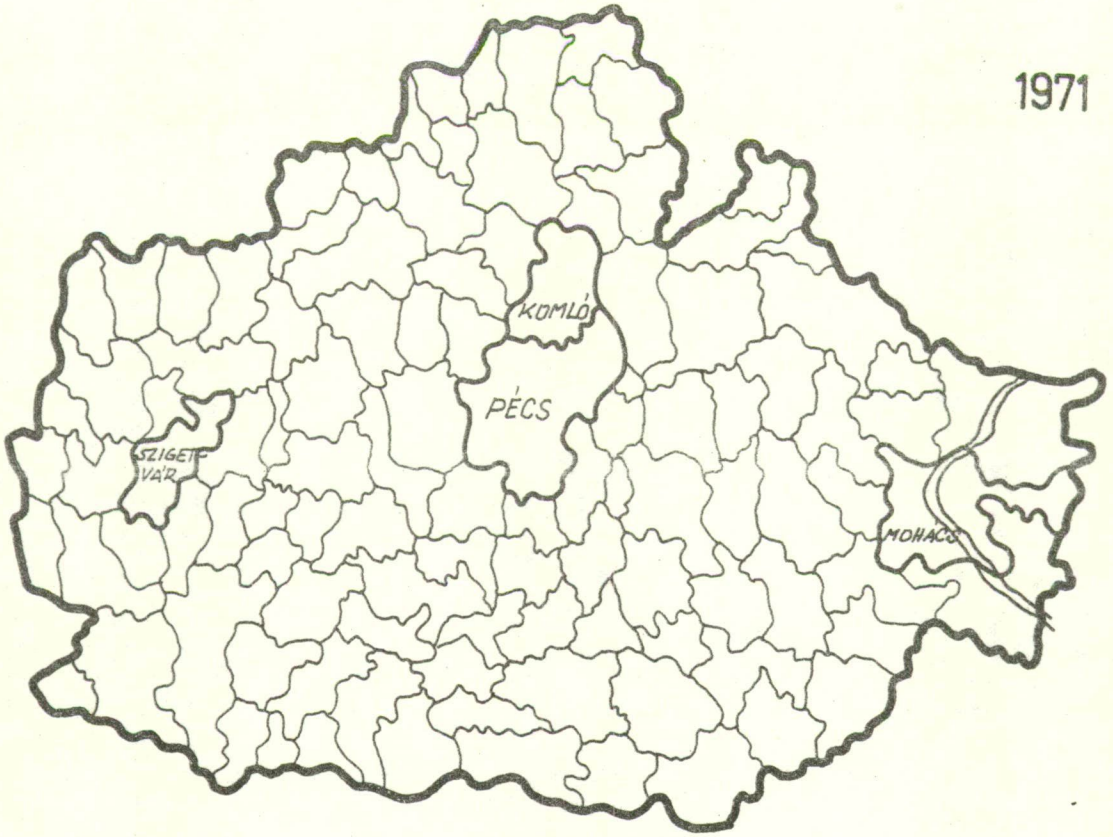

Abb. 3.

THE METHODOLOGICAL BASES FOR THE TYPOLOGY OF WORLD AGRICULTURE

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An attempt at ordering the investigated facts and/or processes according to a certain system of classification is a characteristic stage of development of any research discipline. Dealing with almost indefinite array of facts, phenomena, and processes distributed over the earth, geography arrived at this stage of development rather late. At first geographers paid more attention to the regionalization i.e. to the division of the earth surface into territorial units on the basis of their uniformity and dissimilarity to the other. Only the specialization within the field of geography enabled to pass to the stage of systematics or typology i.e. to grouping the investigated facts, phenomena or processes according to their similarity or affinity, For many years, however, the two different concepts, that of regions and that of types have been confused[15].

The same line of development was characteristic for agricultural geography. Founded by a common effort of geographers and agricultural economists, it passed very soon to the stage of looking for syntheses whether of territorial,

regional character /agricultural regions/ or of systematic, typological character /agricultural systems or types of farming/ either for limited territories /individual countries or regions/ or for group of countries, continents or the world. The methods used in such investigations and the results obtained have recently been discussed by J. Henshall,[9] D. Grigg[8], A.N. Rakitnikov[20] and H. F. Gregor[7].

In fact their studies, and in particular the review of the world classifications of agriculture as made by D. Grigg, have released me from the duty of reviewing the criteria, methods and techniques applied by numerous scholars in their typologies and regionalizations of world agriculture.

There were, however some other attempts either published in other than English languages or those that appeared later with which I would like to supplement the Dr. Gripp's review.

First of all French contributions should be mentioned here both that used by Daniel Faucher in his classic book Geographie agraire[4] les cultures itinerantes, les cultures sed entaires avec jacheres, les cultures continues par accumulation du travail humain, les cultures intensives par assolements, l'agriculture scientifique/ and a similar classification for livestock breeding by Paul Weyret[23] elevages marginaux, elevages sentimentaux, elevages sans agriculture, elevages combines avec l'agriculture/ and their subtypes.

In spite of the fact that no criteria for those classifications were offered, one can easily guess that in both cases they were based mainly, if not exclusively, on organizational and technical characteristics of agriculture.

Pierre George represented a different approach, putting more emphasis on the social and economic characteristics of agriculture traditionelle paysanne seche, mediterranéenne et irriguée, 2. les campagnes de l'Europe industrielle de l'Ouest 3. les campagnes speculatives sans paysans, including North American and plantation agriculture, 4. Campagnes en économie socialiste.

In another book[6] the same author singled out the following types of agriculture: 1. l'agriculture de subsistence, 2. l'agriculture de marché, 3. l'agriculture de speculation, 4. l'agriculture des pays d'economie socialiste.

In Poland, in his chapter on land use and agriculture of the Polish World Geography[22], F. Uhorczak presented more developed classification in which he tried to combine the cultural geography /E. Hahn, K. Sapper, H.F. Gregor/ and economic geography /D. Whittlesey and others/ approaches with more emphasis on the commercialization of individual agricultures /Table 1/. Each of the distinguished types has been presented on the map.

Table 1

Types of agriculture - by F. Uhorczak /1963/

Producing mainly for self-subsistence		Producing mainly for internal and world market
Nomadic herding	Exclusively livestock breeding	Commercial livestock grazing
Primitive crop growing /shifting and sedimen tary/	Primitive agriculture /hoe and stick/	
Mixed crop and animalfarming Intensive agriculture - food with padix rice dominant without padi rice dominant - casis agriculture	Mixed crop growing and animal breeding /plough agriculture up to the most mechanized/	Mixed crop and animal farming - Dairy farming - Grain Farming - Mediterraneen agriculture with fruit trees growing dominant with crop growing and animal grazing dominant - Horticulture and fruit farming - Plantations

Few years later G. Enyedi in his "Agriculture of the World"[3] proposed a new, developed, multi-level typolgy with great emphasis on the social differences between agricultures. He distinguished first three groups: traditional /I/, capitalist /II/, and socialist /III/ agriculture, further subdivided, based on organizational, technical and production characteristics, into 10 types /I: nomadic shepherding, shifting cultivation, traditional mediterranean farming, traditional irrigated farming; II: multibranch European type, overseas highly speci-

alized, plantation agriculture; III: agriculture of East Central Europe, agriculture of the USSR, socialist agriculture in some Asian countries and in Cuba.

The "taxonomy" of world agriculture by L. Zobler /24/ should also be mentioned here /table 2/.

Table 2

A Taxonomy of World agriculture L. Zobler /1965/

Management	Activity
Cultigens absent or negligible	Gathering
Plant product harvested	
Animal product harvested	
Non-domesticated	Hunting and fishing
Domesticated	
Subsistent	Herding
Commercial	Grazing
Cultigens predominant	
Individual	
Impermanent	
Subsistent	Swidden
Partly commercial	Bush swidden
Permanent	
Subsistent or weakly commercial	Peasant farming
Commercial	Family farming
Group	
Subsistent or weakly commercial	
Areally concentrated	Manor /extinct/
Areally dispersed	Hacienda
Commercial	
Single ownership	Plantation
Separation of ownership and management	Corporation farming
Joint ownership	Cooperative farming
Limited ownership under state management	Collective farming
State ownership and management	State farm operations

More recently, using the results of the discussion on peasantry and other social forms of farming, Hiroshi Ishida /11/ distinguished four types of world agriculture, namely: 1. tribal subsistence agriculture, 2. peasant agriculture, 3. individualistic capitalist agriculture, and 4. cooperative agriculture subdivided into capitalistic cooperative agriculture and communistic collective agriculture.

Quite a different approach to the classification of world agriculture has recently been offered by A.N. Duckham and G.B. Masefield /2/ Putting on the coordinates the intensity of farming, starting from the most extensive to the most intensive, on one side and forms of land use from tree crops through tillage with or without livestock, alternating tillage with grass, bush or forest /including fallow and field-grass systems/ to grassland use on another, with a subdivision of each resulting category into temperate and tropical systems, they distinguished 28 systems of world agriculture.

An interesting table has recently been produced by S.N. Dicken and T. Pitts in the last edition of their textbook /1/ in which they distinguished 9 types of agriculture /migratory agriculture, bush swidden, "savage" fallow, European manorial system, oriental rice farming with dry winter grains, mixed farming, Mediterranean agriculture, tropical plantations and mid-latitude monoculture /with capitalist and socialist varieties/, each characterized by their characteristic agricultural tools, crop emphasis, typical crops, land pattern, dominant animals, ownership

pattern, settlement type, economic stage, population density and typical areas. The table was supplemented by a commentary. However, except F. Uhorczak, none of the above mentioned authors produced any map of their types, systems or regions of world agriculture.

Most of these and other classifications, typologies or regionalizations have been based on general knowledge and experience of their authors, only some of them listed the criteria and none proposed any methods by which an individual case could be classified into one or another type of agriculture.

The IGU Commission on Agricultural Typology, established in 1964, has approached this problem in a different way /10, 12, 13, 14, 15, 16, 17/
First, on the basis of two questionnaires, distributed among numerous scholars, the criteria, methods and techniques of agriculture were discussed. The particular stages of this work as well as numerous case studies that tested the proposed criteria, methods and techniques were discussed at the Commission meetings in Mexico City /1966/, /21/ New Delhi /1968/ /18/ and Verona /1970/ /19/

On the basis of those discussions a list of variables representing all the important characteristics of agriculture together with their ranges, classifications and proposed thresholds were compiled and sent to the Commission regular and corresponding members /Questionnaire No. 3/.

The answers to that Questionnaire, which modified some of the proposed indices and thresholds, served as a basis for the preliminary scheme of the typology of world agriculture as presented in this paper.

The following variables /table 1/ have been used, each reduced to five thresholds based on their world ranges /for measurable variables/ or on simplified classifications /for non-measurable ones/. The first have been expressed by indices whereas the latter by symbols.

Table 1.
Variables adopted

I. Social and ownership characteristics

1. System of land tenure
   A. Common. B. Tenancy for services or share-cropping
   C. Owner-operated. D. Corporation or Co-operative
   E. Collective

2. Average size of farms
   /1/ below 2.
   /2/ 2-10.
   /3/ 10-50.
   /4/ 50-200.
   /5/ over 200 hectares.

II. Organizational and technical characteristics

2. Inputs of live and mechanized power

3.1. Inputs of labour
   /1/ below 10. /2/ 10-20. /3/ 20-40.
   /4/ 40-80.
   /5/ over 80 persons employed in agriculture per 100 hectares of agricultural land.

3.2. Inputs of animal power

/1/ below 4. /2/ 4-8.
/3/ 8-15. /4/ 15-25.
/5/ over 25 of conventional animal horse equivalent units per 100 hectares of agricultural land.

3.3. Inputs of mechanical power

/1/ below 0,5. /2/ 0,5-1.
/3/ 1-2. /4/ 2-5.
/5/ over 5 tractors in conventional /15 HP/ units per 100 ha of cultivated land.

4. Soil fertilization

4.1. Organic manuring

/1/ below 20. /2/ 20-40.
/3/ 40-80. /4/ 80-150.
/5/ over 150 conventional /big 500 kg/ animal units per 100 ha of cultivated land.

4.2. Chemical fertilizing

/1/ below 50. /2/ 50-100.
/3/ 100-200. /4/ 200-400.
/5/ over 400 kg of chemical fertilizers in pure content /NPK/ per 1 hectare of cultivated land.

5. Irrigation

5.1. Extent of irrigation

/1/ below 10. /2/ 10-20.
/3/ 20-40. /4/ 40-60.
/5/ over 60 per cent of agricultural land.

5.2. System of irrigation

A. Flooding /floodwater/ seasonal irrigation by gravity flow. B. Gravity flow irrigation from permanent streams, springs, wells or tanks. C. Irrigation by lifting ground water. D. Irrigation by pumping water. E. Sprinkler irrigation.

6. Systems of farming

6.1. Systems of land use

A. Permanent rough grassland.
B. Improved grassland.
C. Arable land.
D. Mixed arable and perennial crops.
E. Perennial and semi-perennial crops.

6.2. Systems of crop /or land rotation/

A. Shifting cultivation.
B. Crop rotation with current fallow.
C. Continuous crup growing with regular or irregular rotation.
D. Field-grass rotation /ley/.
E. No crop rotation.

6.3. Intensity of cropland use

Ratio of harvested to arable /fallow included/ land

/1/ below 0,3. /2/ 0,3-0,7.
/3/ 0,7-1,3. /4/ 1,3-2,0.
/5/ over 2,0.

6.4. Cropping systems

A. Digging stick or hoe.
B. Wooden arable implements.
C. Animal-drawn iron plough with share.
D. Animal-drawn steel plough with associated machinery.
E. Tractor-drawn machinery.

6.5. Systems of livestock breeding

A. Nomadic.

B. Transchumance and seasonal grazing.

C. Grazing on permanent pastures /ranching, otgon, etc. systems/.

D. Livestock breeding within mixed livestock and crop farming.

E. Dry-lot breeding.

III. Production characteristics

7. Agricultural productivity

7.1. Land productivity

/1/ below 20. /2/ 20-40.
/3/ 40-80. /4/ 80-120.
/5/ over 120 grain equivalent units of gross production per 1 ha of agricultural land

7.2. Labour productivity

/1/ below 50. /2/ 50-100.
/3/ 100-250. /4/ 250-500.
/5/ over 500 grain equivalent units of gross production per 1 ha of agricultural land

8. Commercialization of agriculture

8.1. Level of commercialization

/1/ below 10. /2/ 10-20.
/3/ 20-40. /4/ 40-100.
/5/ over 100 grain equivalent units of commercial production per 1 ha of agricultural land.

8.2. Degree of commercialization

/1/ below 20. /2/ 20-40.
/3/ 40-60. /4/ 60-80.
/5/ over 80 per cent of gross production is a commercial production.

9. Orientation of agriculture

9.1. Ratio of animal to total production within gross production in 20 per cent thresholds.

9.2. Ratio of animal to total production within commercial production in 20 per cent thresholds.

These indices or symbols have been ascribed to 33 model types of world agriculture singled out on the basis of the previous classifications, statistical yearbooks and vast literature concerning areal differentiation of world agriculture.

Apart from the selection and adequate expression of variables characterizing various aspects of agriculture, the next important methodological problem in agricultural typology, that in spite of many attempts has not as yet found a satisfactory solution, is the method of their combination i.e. of comparing individual units as characterized by sets of those variables. Both methodological problems are interrelated, since the expression of variables is closely connected with the method of their combination.

There are many reasons of this state of things. First, as one can see from the above, many variables characterizing important aspects of agriculture cannot be expressed in a mea-

surable way or at least by single indices due to their structural character.

This makes it difficult to apply - when combining variables - most of the quantitative methods used in many research works to single out homogeneous units. The other problem revealed in course of the discussion held in Verona[+] is that most of those methods, based on the averages for a certain area and certain time, do not meet the principal requirement of agricultural typology, which is the full comparability of results both in time and space. Also unreliable statistics and lack of both computers and trained staff in most of the developing countries makes it difficult or even quite impossible to use more refined, quantitative methhods of combining variables.

For this reason, the combination of the two simpler methods has been used in the present study namely of the graphic method of typograms /star diagrams/ and the deviation from the model type method tested already by several regional studies.[++]

First typograms have been constructed for each of the assumed 33 model types of world agriculture. As the use of typograms implies the use of indices representing quantitative characteristics, only 12 out of 20 variables could be used in their construction. The additional 8 have been marked either by symbols /if non-measurable/ or by figures /if measurable but representing qualitative characteristics/ on the axes of the typograms.

[+] The proceedings are in print.

[++] See: J. Kostrowicki, W. Tyszkiewicz /Eds./. Essays... J. Bonnamour. Typologie agraire en France. W. Stola. La typologie agricole d'une mésoregion. Comparaison des résultats obtenus par deux méthodes divers. J. Kostrowicki, R. Szczesny. A new approach to the typology of Polish agriculture - all in the proceedings of the Verona meeting /in print/. Recently the typogram method has been adapted to the developmental studies in Borgo-Mozzano by the Shell Company agricultural station and is also tested in planning agricultural areas in Poland.

At first glance, the distribution of variables on the axes of the typogram /Fig. 1/ seems to be haphazard. In fact, in order to attain the best comparability of the individual typograms, the variables have been very carefully arranged. The indices that usually correlate or influence each other have been placed either next to each other or on the opposite axes.

As the indices represent in fact certain classes or thresholds, each of the typograms constructed consists actually of two typograms showing - for each type - maximal and minimal range of indices between which individual cases representing a given type have to be contained. Of course if such a case exceeds in 1 or 2 indices the established minima or maxima, it still could be considered as being of the same type.

The use of the deviation method implies the formalized presentation of variables. The following formula has thus been applied:

$$T = S \frac{O}{P}$$

in which T means type of agriculture, S - social characteristics, O - organizational and technical characteristics, P - production characteristics.

In such a formula variables can be arranged in the following way:

$$T = /1,2/ \frac{/3.1,\ 3.2,\ 3.3/\ /4.1,\ 4.2/\ /5.1,\ 5.2//6.1,6.2,6.3,6.4,6.5/}{/7.1,\ 7.2/\ /8.1,\ 8.2/\ /9.1,\ 9.2/}$$

Each individual case can thus be compared with the formula representing the most similar model type. If there are no more than 4 deviations /1/5 of the total/ from the model type, a given case could still be considered as being of the same type. The cases with the deviations going in the same direction could then be grouped into subtypes. The case which differs from a model type by more than 4 deviations, might be either of different type of agriculture or of intermediate or composed character, the latter relative to the case when one has to deal with aggregate units. Such cases have to be investigated individually.

The comparison of the typograms and formulas made for the preliminary 33 model types of world agriculture /for examples see Fig. 2/ revealed that some of them are very similar to each other and might be considered as subtypes rather than types of the first order of world agriculture. In result the number of types has been reduced to the following 24, each characterized by particular sets of variables that are only partly reflected in their names. These types were then assembled into 4 groups of types /or subtypes/:

I. Primitive agriculture

1. Shifting /long fallow/ agriculture
2. Nomadic herding

II. Traditional agriculture

3. Current fallow agriculture
4. Continuing extensive, mixed agriculture
5. Labour intensive non-irrigated crop agriculture

6. Labour intensive irrigated crop agriculture
7. Labour intensive irrigated semi-commercial crop agriculture
8. Labour intensive non-irrigated semi-commercial crop agriculture
9. Low intensive semi-commercial crop agriculture
10. Large-scale, low intensive, semi-commercial agriculture /latifundium/

III. Market-oriented agriculture

11. Intensive mixed agriculture
12. Intensive agriculture with fruit crops growing or/and market-gardening dominant
13. Specialized large-scale agriculture with livestock breeding dominant
14. Plantation agriculture
15. Specialized irrigated agriculture
16. Specialized large-scale grain crop agriculture
17. Specialized large-scale grazing /ranching/

IV. Socialized agriculture

18. Mixed agriculture
19. Specialized fruit and vegetable agriculture
20. Specialized industrial crop agriculture
21. Specialized grain crop agriculture
22. Specialized grazing
23. Intensive non-irrigated crop agriculture
24. Intensive irrigated crop agriculture

The typology of world agriculture as presented above has to be considered as a preliminary step in approaching the classification of world agriculture based on the established in advance uniform criteria, methods and techniques as well as on the uniform variables. As a preliminary one it contains a lot of inconsistencies and errors. It is hoped, however, that it could provide an adequate basis for discussion that would eventually lead to its improvement and to a more acceptable and agreed version of the typology of world agriculture. Only such a typology could be recommended as a framework for more detailed and more accurate regional studies. It is felt that only then the distribution of the proposed types can be presented on a map. In the meanwhile, however, it is both possible and desirable to start working on mapping the individual aspects of agriculture represented by the proposed variables and expressed by the indices, structures and classifications. To do so, the data from the 1970 World Agricultural Census should be applied. These will test once again the validity of the proposed methods and classifications.

Certainly, further more detailed and more accurate regional studies going deepet into the subtypes of various order will change both the number and characterization of individual types of world agriculture.

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Fig 1

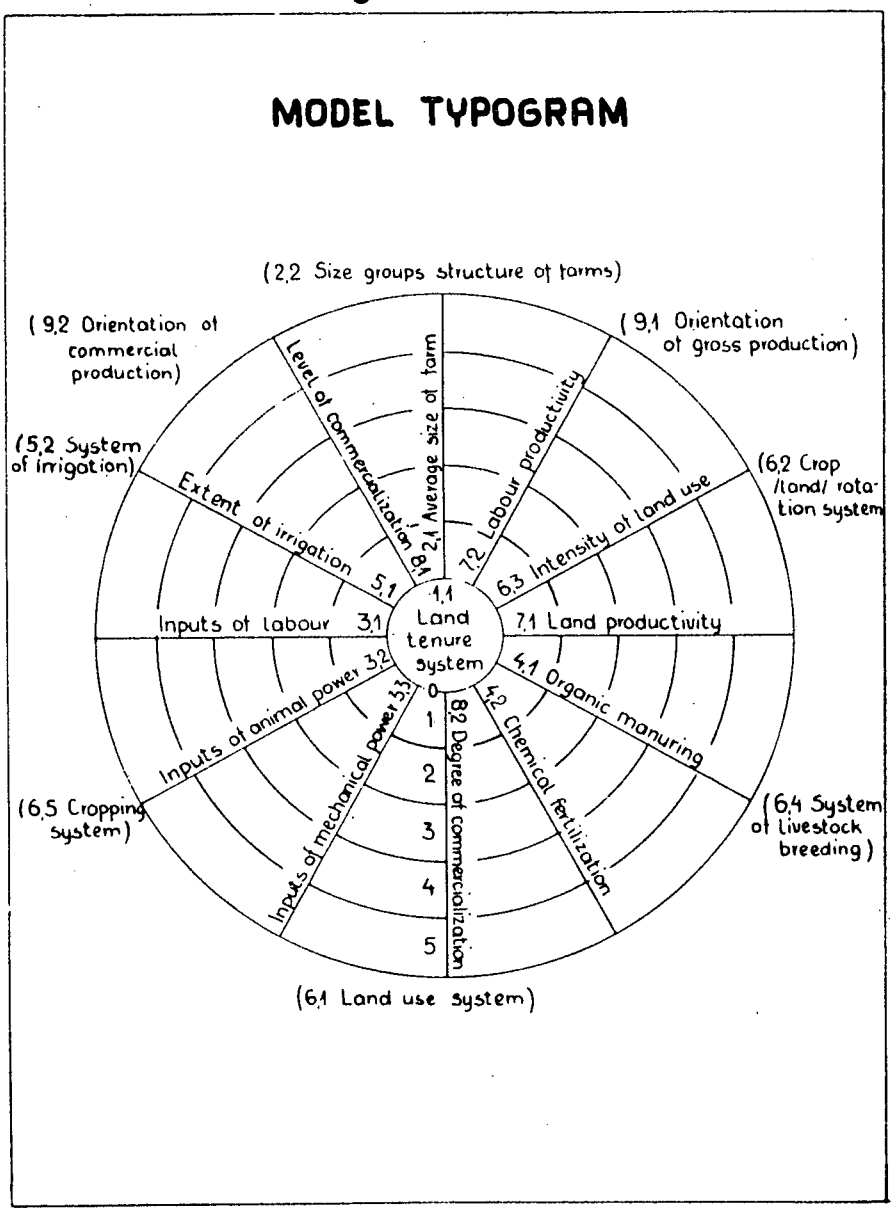
MODEL TYPOGRAM
(2.2 Size groups structure of farms)
(9.2 Orientation of commercial production)
(9.1 Orientation of gross production)
(5.2 System of irrigation)
(6.2 Crop /land/ rotation system
(6.5 Cropping system)
(6.4 System of livestock breeding)
(6.1 Land use system)
Level of commercialization 8.1
2.1 Average size of farm
7.2 Labour productivity
Extent of irrigation 5.1
6.3 Intensity of land use
Inputs of labour 3.1
1.1 Land tenure system
7.1 Land productivity
Inputs of animal power 3.2
4.1 Organic manuring
Inputs of mechanical power 3.3
8.2 Degree of commercialization
4.2 Chemical fertilization
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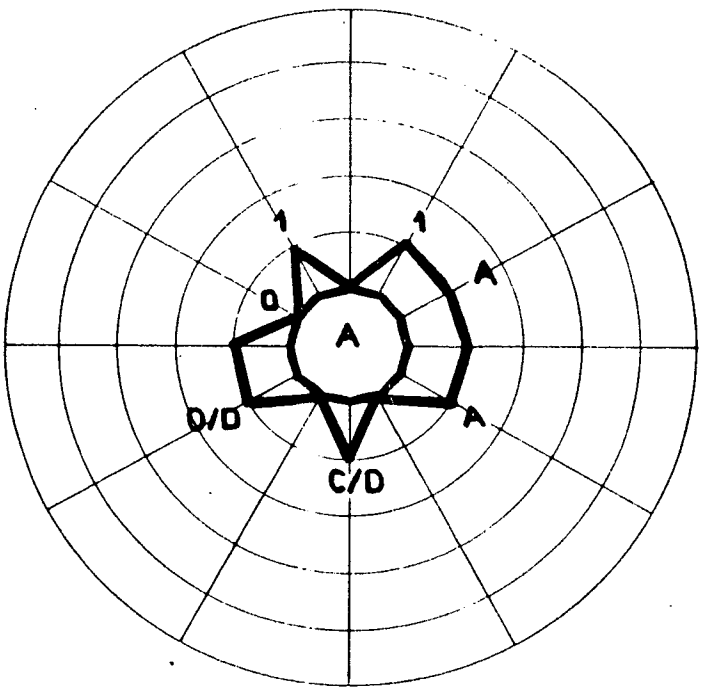
Fig 2

Type 1



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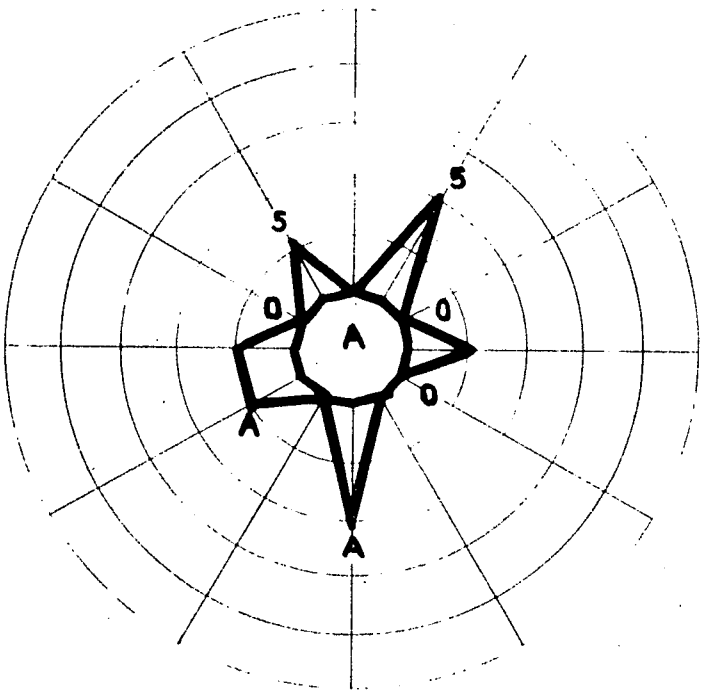

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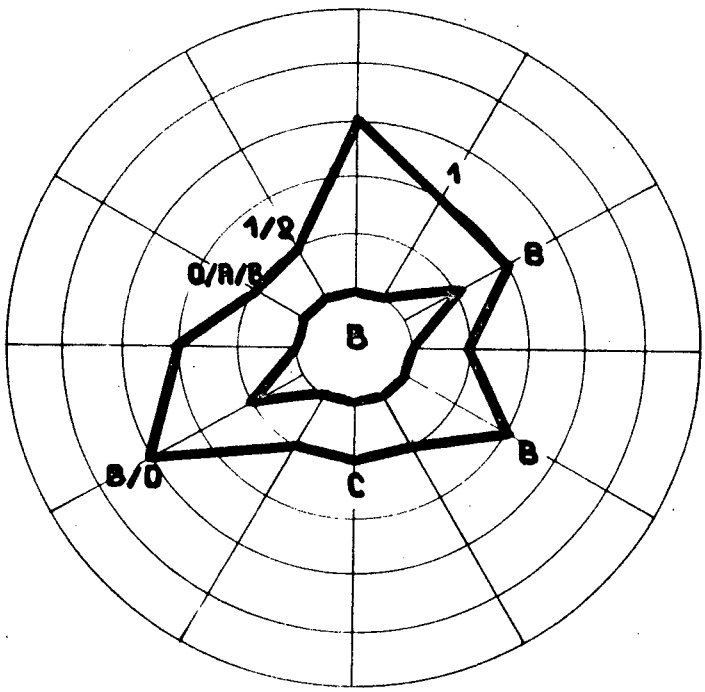

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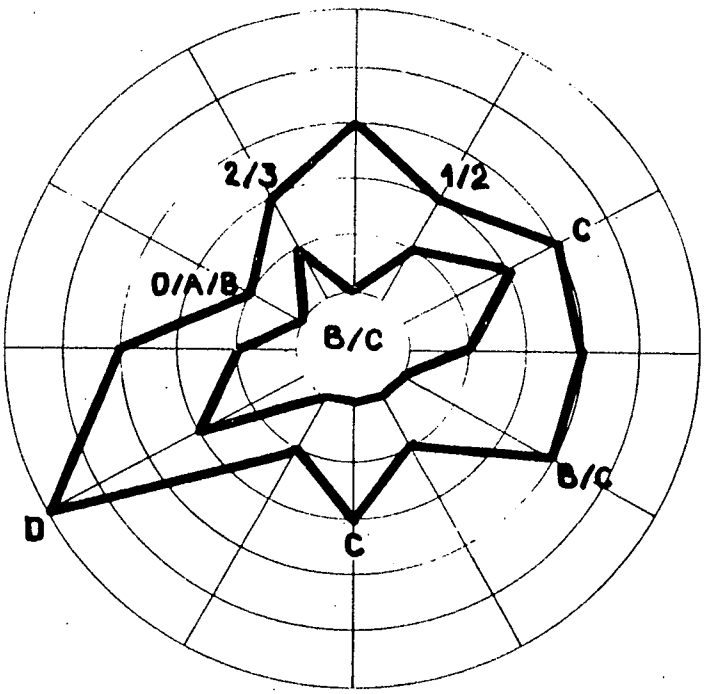

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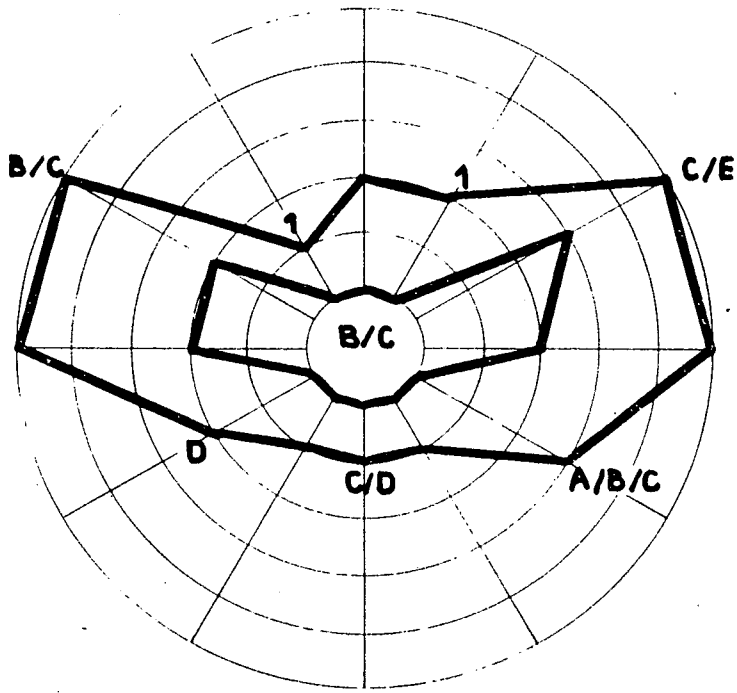

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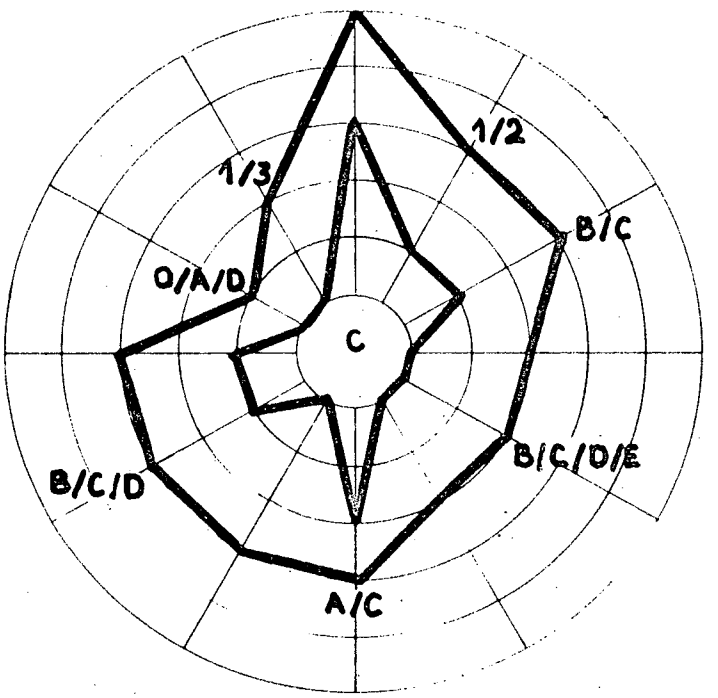

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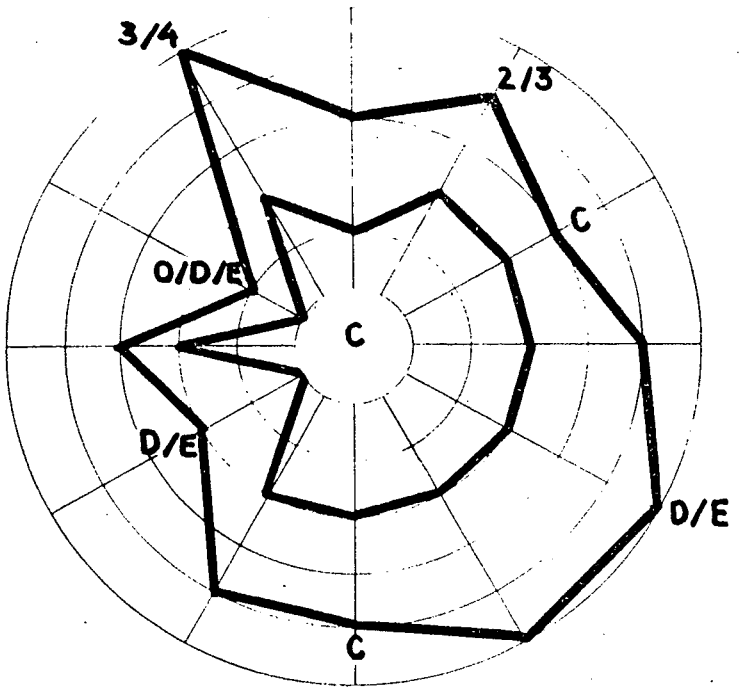

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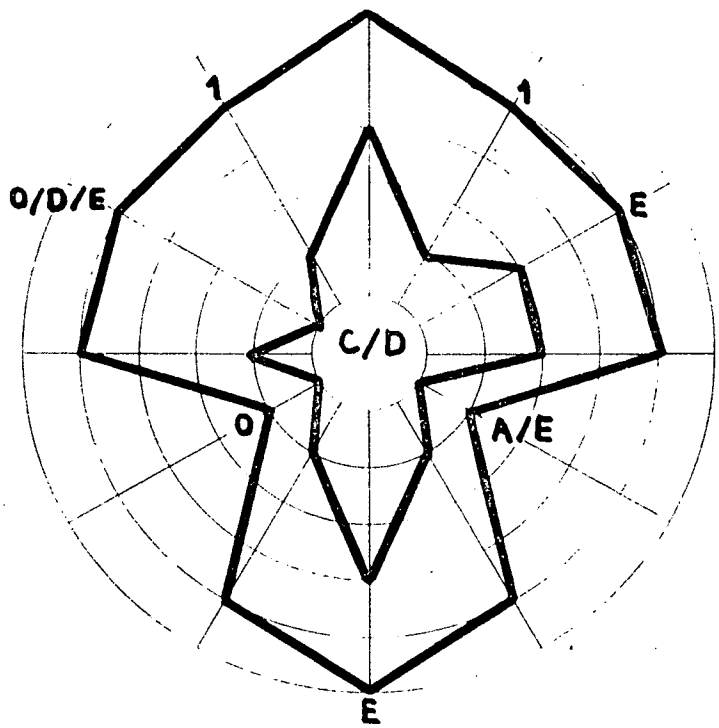

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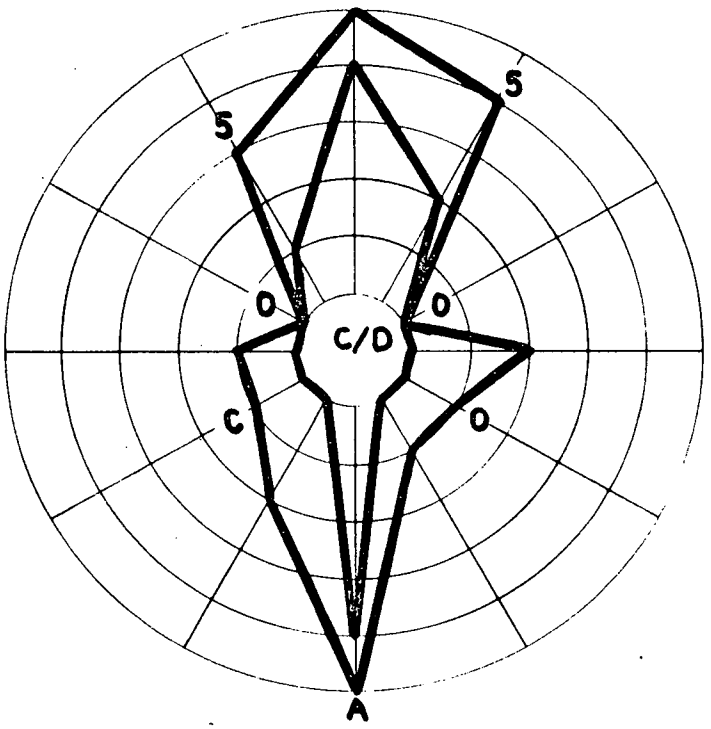

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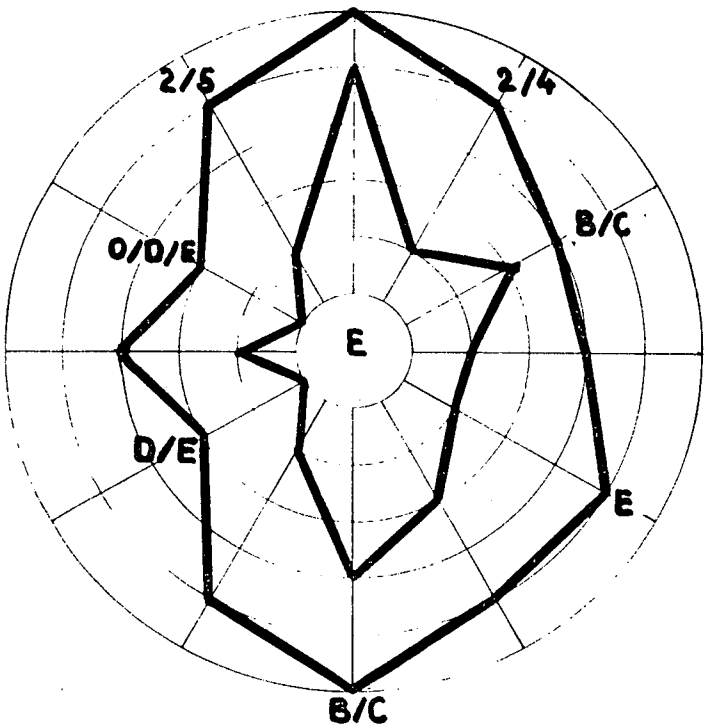

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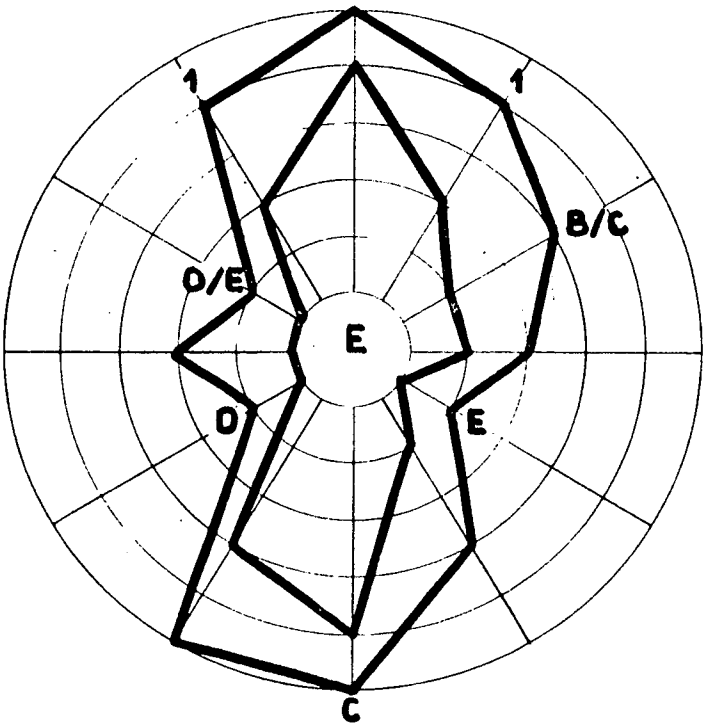

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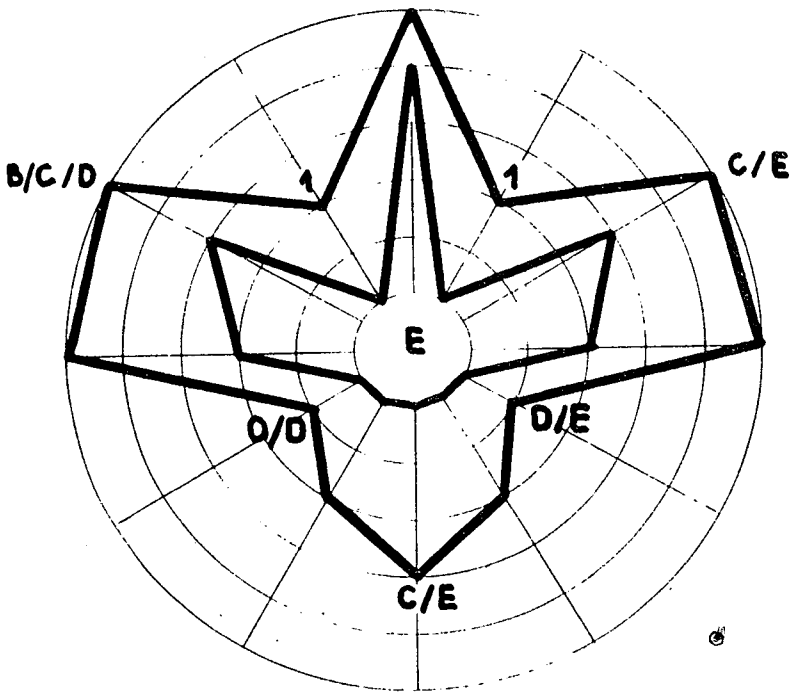

SOME CHARACTERISTIC FEATURES OF THE INDUSTRIAL DEVELOPMENT OF THE SOUTHERN GREAT PLAIN

Gy. K r a j k ó

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The southern /part of the/ Great Plain is an areas difficult to delimit exactly but one that owing to its quick economic development is becoming more and more distinct. It comprises nearly 20 per cent /18,520 square km/ of the area of the country and 14 per cent /1.461 million persons/ of its population. It owes its internal unity mainly to the industries based on agricultural raw materials/ as canning, meat, sugar, milling and textile industries/, the new trends in agricultural production /wheat, maize, industrial plant, grapevine, fruit, vegetable, hog and poultry raising/, and the ever increasing and widening economic and cultural attraction of Szeged. The process of developing into a uniform area has been greatly favored by oil and natural gas exploitation and a few branches of the fast developing light and heavy industries. The unity of the area is further proved by common problems in the development of the industry, the agriculture, the transport and the settlement network as well as in the rational use of manpower. Among the experts dealing with area research it is essentially an accepted view to calss the three sout-

hern counties in one economic area.

Before the Liberation the industry of the southern Great Plain was to a great extent decentralized, all its towns had a few small food industrial plants /especially milling, meat, sugar and canning industries/ or light industrial plants /hemp, knitwear, shoe, and wood industries/, which were chiefly based on raw materials and cheap manpower, but no industrial centers could develop except in Szeged. Among the settlements of the southern Great Plain, Szeged was outstanding both as regards its population and the number of industrial workers. In 1941, 9 per cent of the population of the area and 25 per cent of the industrial workers were concentrated in the town.

The cultural role of the town extended far beyond the boundaries of the southern Great Plain and had a nationwide importance. The town had important milling, hemp, meat, wood, match, tobacco, leather, and shoe industries. The factories of these industries were chiefly based on raw materials and manpower. Some factories were attracted by the possibility of the cheap transport by water /wood and match industries/. The industrial development of Szeged was arrested for four decades from the beginning of the First World War and remained approximately on the same level. In the first decade after the Liberation production grew above all through the enlargement of the already existing factories, the increase of the number of workers, and better employment of the working time. It was only the cultural role of the town that increased. This was due to the fact that in 1921 the University of Kolozsvár was tranferred to Szeged. After the Liberation a number of middle

schools were established and the University was essentially enlarged.

The economic stagnation had several causes: in the period between the two world wars the industry and the agriculture did not develop even on the national level, and the stagnation of agriculture naturally hindered further development of the food industry. In the one and a half decades after the Liberation the speed of industrialization changed radically, but owing to other unfavorable circumstances the southern Great Plain and Szeged continued to be in a disadvantageous position. This area is poor in mineral resources, and there were no energy sources in it either, and in the period of the quick development of the heavy industry large-scale industrial development was concentrated first of all in the sectors having mineral energy sources. The development of the agriculture was very slow at this time, the character and structure of production and the production yields did not change much. Besides this, the position of Szeged was disadvantageous owing to the nearness of the state border, on account of which no important investments were made here and because of the lack of interstate relations with Yugoslavia the through traffic of the town was stopped. /In addition to this, the traffic going toward Rumania bypassed it also./

The position of the southern Great Plain and that of Szeged has changed considerably in the last decade. There have been changes in the economic policy of the country, and the development of industrially less advanced areas has centrally been given special attetion, and instead of the branches of heavy industry requiring costly material the branches of machine industry requiring skilled work have been given preference. Both principles are extremely favorable for the sout-

hern Great Plain, which is poor in raw materials but has plenty of manpower. The creation of socialist large-scale farming in the agriculture has not only increased the basis of raw materials but has also liberated considerable manpower, and beyond this it has also otherwise stimulated the development of industry.
/For example by the creation of ancillary cooperative plants, increasing the demand for industrial products, etc./. With the opening up of hydrocorbon fields, the possibilities of energy and raw material supply have improved. Trough the normalization of the interstate and social relations with Yugoslavia the position of Szeged has changed favorably and its through traffic has considerably increased.

Under the changed circumstances the industrial development of the area has accelerated and in the last decades it has surpassed the national average. The endeavors of the government organs to develop the industry of the area have been successful. As a result of this, the ratio of industrial workers between the counties has changed. This is well illustrated by the cumulated row of those employed in the socialist industry in the different counties /Fig. 1/. In 1963 the five industrially best developed counties /together with Budapest/ gave employment to nearly 70 % of the industrial workers, while the eight industrially underdeveloped counties only to 15 %. By 1969 however, the ratio of the first group had fallen 62,5 % and that of the latter group had risen to 18,5 %.

The economic indexes of the southern Great Plain show faster development even than that of the other provincial areas. The amount of investments made has risen threefold since 1960 and their national rate has risen from 8,1 % to 11,3 %. The growth of the industrial investments made was even greater;

since 1960 it has risen sixfold and its national ratio has risen from 3,5 % to 10 % /Fig. 2/. The number of industrial workers and their proportion have changed accordingly and the technical indexes have also changed. The number of those working in the socialist industry rose from 120,4 thousand to 176,8 thousand between 1960 and 1969, the gross val e of the fixed assets rose from 8,6 billion Ft to 17,2 billion Ft, and the consumption of electric energy was doubled. Accordingly, its national proportion also changed in the given period. It changed in order from 8,3 % to 10,3 %, from 4,5 % to 6,4 %, from 2,5 % to 4,0 % /Fig. 3/. These data prove without a doubt the accelerating industrial development of the southern Great Plain, but at the same time they indicate, in comparison with the national rates, that the greatest change has been in the number of those employed and the fixed assets.

The process described above is connected with many problems the analysis of which is the task of the economic geographer. Such problems are for instance the migration and reshuffle of the population, the territorial differences in the manpower supply, the development of the network of settlements, the influence of the industrial development on the agriculture, the changes in the structure of the industry, the territorial differences in the industrial development, etc. Within the limited space of this paper I want to deal with the last two problems in some detail.

The Change in the Stucture of the Industry

In spite of the rapid industrial development, the agricultural character of the region continues to be a mark distinguishing it from industrial regions. Between 1960 and 1970 the rate of those working in the industry and the building trade rose from 20,5 % to 28,9 %, the rate of those working in transportation rose from 4,5 % to 5,1 %, while the rate of the agricultural population fell from 54,2 % to 46,1 % and the rate of other categories from 15,9 % to 13,5 %. The rate of the agricultural population is still relatively high, especially in Bács and Békés counties where it amounts to nearly 50 %. /Table 1/.

The dinamism of the reshuffle has been very strong in the district and if this process continues the numbers of the agricultural and industrial populations will come near to each other, that is in the district rates similar to the present national rates have developed.

Table 1.

The population according to the different branches of the national economy /1960 to 1970/

Territory	1960											1970									
	Pop. total 1000 persons	Of this: industry building trade		agriculture		transportation		commerce		other		pop. total 1000 persons	Of this: industry building trade		agriculture		transportation		commerce		other	
		1000 pers.	%	1000 pers.	%	1000 pers.	%	1000 pers.	%	1000 pers.	%		1000 pers.	%	1000 pers.	%	1000 pers.	%	1000 pers.	%	1000 pers.	%
Bács-Kiskun	586	106	18.2	347	59.2	27	4.6	25	4.2	81	13.5	575	161	28.1	282	49.3	38.	6.7	27	4.6	65	11.3
Békés	468	89	19.2	265	56.6	23	4.8	21	4.5	70	14.9	447	118	26.4	223	49.9	33	7.4	23	5.2	50	11.1
Csongrád Szeged	434	109	25.1	194	44.9	23	5.4	20	4.7	86	19.9	441	143	32.4	168	38.0	29	6.5	24.	5.5	77	17.6
Total	1488	304	20.5	807	54.2	66	4,5	66	4.5	237	15.9	1461	422	28.9	673	46.1	100	6.8	74	5.1	192	13.1

Table 2.

The rates of the industrial sectors in the southern Great Plain /1969/ on the basis of profession

Sector	Number of those employed	%	Share in national %	Per 1000 inhabitants	Relation of value per 1000 inhabitants to national index
Ministerial	114.972	61,6	8,4	78,6	59,5
Council	18.126	9,6	12,0	12,4	88,5
Cooperative	44.284	23,6	19,1	30,3	137,7
Private	9.785	5,2	14,6	6,6	110,0

The rate of industrial sectors /Table 2/ is similar to that of the sectors of agricultural character. In the more concentrated, technically better equipped ministerial sector the rate of those employed, 61,6 %, remains below the national index /75,2 %/; at the same time the council industry /9,6 %/, the cooperative sector /23,6 %/, and the private small industry /5,2 %/ surpass the national ratio. The index of cooperative industry calculated for 1000 inhabitants is much higher than the national value /Fig. 4/. Of course, the afore-mentioned data change in each county, for instance the proportion of those employed in ministerial industry is highest in Csongrád county: 67,0 %; in Békés county on the other hand the rate of the cooperatives stands out with 32,0 % at the expense of the council sector.

In the last years it is the cooperative sector that has developed most vigorously. /In the course of this development its rate grew between 1966 and 1969 from 12,0 % to nearly 13,0 %/. It follows from the peculair rates of the industrial sectors of the southern Great Plain that this nationwide tendency affected the district in a greater degroe. Thus the outstandingly high rate of industrialization is party due to the rapid development of the cooperative industry.

As regards the structure of the industry and the proportions of its branches, this region is more like the industrially underdeveloped areas of the country. In comparison with the national values the backwardness of the heavy industry is conspicuous. In 1969 its branch share according to the number of those employed amounted to 6,0 %, and even according to the index calculated upon the population this region reaches only 40,0 % of the national average. /Fig.5/

The rate of those employed in the heavy industry reflects essentially the same, its value is the lowest among the districts, only 33,0 % /while the national value is 59,0 %/. At the same time of course the tendency of the development must not be disregarded as this is very interesting from the point of view of the district.

1/ In the last decade it was the heavy industry among the industrial branches of the district that has developed most dynamically. As a result of this the proportion of the branches has been shifted considerably /Table 3/, while in 1963 the heavy industry accounted for 22,0 % of those working in the industry, by 1969 this value has risen to 34,0 %. The national rate changed similarly, rising from 3-2 % to 6,0 %.

At the root of the rapid development of the heavy industry there is first of all the opening up of the hydrocarbon deposit, and as basically this represents in already formed rate and is hardly going to change in the near future, the rate of growth of the heavy industry is likely to decrease.

2/ In four sub-regions of the southern Great Plain the proportion of the heavy industry is nearly the same and so is the rate of its development: in each of them there is a sudden rise from 1967 onward /Fig. 6/. This change can no doubt be explained by the development of hydrocarbon exploitation /hydrocarbon exploitation grew to considerable proportions from 1967 onward/, but the rise had begun much earlier. If follows from this that the rate of development of the heavy industry of this region surpassing the national average cannot be explained by the hydrocarbon exploitation only; other factors must also have contributed to it. Among others such a factor has been the influence of industrial firms removed from the capital to the provincial areas or the influence of auxiliary firms established in the provincial areas and belonging to industrial firms in the capital. These firms are chiefly branches with a high manpower requirement and they provide employment for the free manpower of the region. Their existence has greatly promoted the industrial development of the region.

This tendency must be mentioned particularly, because it is an effective and well tested method of the industrialization of the provincial areas, the continuation of which is certainly desirable; on the other hand it must be realized that it is not the only or most important factor of the development of the region and so it cannot replace the development of other branches of industry based on the possibilities of the region.

Table 3.

Distribution of those employed in the socialist industry in the different branches

/southern Great Plain/

	1963		1964		1965		1966		1967		1968		1969	
	persons	%	persons	%	persons	%	persons	%	persons	%	persons	%	persons	%
Heavy industry	26.969	22.4	31.457	24.2	33.549	25.3	36.722	26.6	40.171	27.0	54.777	32.5	60.158	33.9
Light industry	66.780	55.5	71.464	54.6	72.946	54.8	74.212	53.9	80.159	54.0	83.630	49.7	85.370	48.1
Food industry	26.651	22.1	27.677	21.2	26.555	20.0	26.822	19.5	28.154	19.0	29.948	17.8	31.874	18.0
Total	120.400	100	130.598	100	133.050	100	137.756	100	148.484	100	168.355	100	177.382	100

The industrial structure of the southern Great Plain is rather complicated as all the basic branches of industry on greater or smaller scale are to be found in it. /Fig. 7/ Only a few of these branches have developed to acquire a national importance, but even so 130 products are made the rate of which compared with the population exceeds the national average and with more than half of this the southern Great Plain holds an outstanding place.

Among the branches of heavy industry crude oil and natural gas exploitation is in the first place. These branches gave 51 and 40 % respectively of the production of this country in 1969 and their contribution is to grow considerably in the future. The largest part of the crude oil production is given by Csongrád county /68,0 %/, and the largest part of the natural gas production by Békés /65,0 %/ and Bács /34,0 %/ counties. It seems that the local energy source that has been opened up is of great importance for the agriculture and the industry. However, its effect did not spread to the development of the other branches of industry because its transportation to the areas possessing heavy industry is more economical.

Local exploitation of part of the natural gas wealth in the district is in progress, expecially for communal purposes as well as in the agriculture in combination with thermal water and in the industry as an energy source.
Its economicalness is evident considering that the average transportation distance of the one million tons of coal arriving in the district is 269,8 km/the national average is 149 km/, its average cost of transportation is 77 Ft per ton,

that is twice the sum of the national average /38 Ft per ton/. In spite of this, changing over to heating with natural gas is making only a slow progress, and thus the amount of coal arriving in the district has not decreased significantly and the industry-establishing effect of the local energy has sor far been very little.

For the number and proportion of those employed in Bács county the production of machines and mechanical equipment, in Békés county the metal mass products industry rise above the national average. Their high manpower requirement is indicated among others by the fact that their proportion according to the technical indexes is much smaller. The building industry grows to proportions exceeding the local needs in Békés county /e.g. it provides 15 % of the burned brick production of the country/.

The possibilities of the development of the chemical industry and precision engineering are a much discussed question. It goes beyond the purpose of this paper to take a stand on this matter with material of evidence. We confine curselves only to mentioning that the conditions necessary for a greater degree of development of both branches of industry exist in the district:

For the chemical industry the necessary water and raw material supply can be secured along the Tisza and the Danube; workers, research institutes, transport facilities are also available. For the solution of simpler part tasks in precision engineering there are possibilities in the villages and small towns where there is still a considerable manpower reserve. For the

solution of the more complicated tasks the situation is mainly favorable in the industrially better developed towns where skilled workers are available and also other conditions can be satisfied.

The wood-working industry is more considerable in Csongrád county where its development has been greatly promoted by the use of the cheap waterway. Unfortunately this possibility is not being used nowadays. The district has no special possibilities for the development of this branch of industry on a larger scale. /For example the average transportation distance of the raw material is 265 km and its direction much agrees with that of the finished products./

Textile industry is the most important branch of industry of Csongrád county. It has made Szeged a center of light industry with its advantages and disadvantages. It contributed greatly to the industrial development of the town, but at the same time it distorted the distribution according to sex because more than half of those employed in this trade are women. /It is here that the rate of employment of women is highest in the country./
The problems of manpower supply have become chronic in the textile industry and for their final solution it is necessary besides the technical development to widen the branches of employment for men which would lead to an increase also in the female labor power. That is to say that the demand is just the opposite of that in the areas of heavy industry, wherethe reasonable employment of women is the problem.

Of great importance in the district are the textile, clothing and tricot-weaving industry and the shoe-marking industry. They are further developed by increasing their productivity.

A basic industry in all three counties is the food industry with all of its essential branches /except beer and chocolate production/. The food industry of the district produces 42 % of the slaughtered poultry of the country, 35-50 % of the canned food products, 100 % of the ground seasoning paprika, 21 % of the wheaten flour, 27 % of the dry noodles, 19 % of the sugar, and 56 % of the salami and Gyulai sausage. The conditions of the district are optimally suitable for the orientation of raw material of this branch of industry. This is proved among other things by the small average distance of raw material transportation /71 km/. The rate of development of this branch of industry is a function of the agriculture, for it constitutes a close production complex with the latter. The association of the agriculture and the food industry is so close that even from the point of view of economic geography it is proper to speak of food economy. Among other things this also proves that the development of a given area cannot and must not be examined only from the point of view of industry and the economic levels of the districts must not beidentified with the level of the industry. It occurs in micro districts and sometimes even in larger units that the main problem of progress is the development of the agriculture, which when extended, entails the development of other branches as well.

Considering the favorable conditions of the agriculture in the southern Great Plain the development of the food industry is a nearly permanent task. A double tendency has in re-

cent times manifested itself in this area, a tendecy that is going to continue. On the one hand modern specialized branches, such as conserve, meat, and other industries considerably increased their productive capacity by reconstruction or by creating new plants, on the other hand the cooperatives have created industrial ancillary plants and thus they market their products as semi-finished or finished articles instead of as industrial raw materials. There are many contradictions between the two kinds of development, especially because the ancillary plants of the cooperatives are rivals to the state industry and the latter, taking advantage of their more favorable wage system have intensified the migration of manpower and made more difficult the manpower supply of the state factories. Both farms of the industry have not inconsiderable possibilities of development in the future.

The briefly outlined industrial strcture is completed by the handicraft industry and the public supply industry.

No essential change can be expected in the industrial structure of the southern Great Plain in the 70's. The food industry will keep its position, the light industry will lose from its proportion, its place will be taken by heavy industry. Within the heavy industry mining represents already a stable proportion: as regards the chemical industry, the machine industry, within it precision engineering, the telecommunication industry, that is, the engineering branches with high working power requirement, it can be expected that their proportion will grow.

The territorial differences in the development of industry

The rapid industrial development of the last decade has undoubtedly worked toward a substantial decrease of the territorial differences, without eliminating them. The general tendency of development of the district is composed of territorially very different processes and this is naturally concealed by the average figures. From the point of view of the development of the industry the possibilities are different from district to district, but also often within one district /degree of industrialization, the process of the reproduction of manpower, the function of the agriculture, its standard, conditions of communication, water supply etc./. Besides different conditions the industrial development, when analyzed for smaller territorial units, is of periodic character. The establishment of a mediumsized plant causes a sudden change in the employment figures and the technical indexes of an industrially less developed district. Taking this into consideration I try to demonstrate in the following the territorial differences in the changes of the last 5-10 years.

The growth of the industry of the district has exceeded the national average. The number of those working in the in-

dustry rosen in 1165 to 1969 by 3 %, the gross value of the fixed assets by 73 %, and the electric energy used by 56 %. These values are different in the different counties. The number of the industrial workers rose much more rapidly in Békés and Bács counties /by 41 and 40 % respectively/ than in Csongrád county /22,5 %/. The situation is the same in the use of electric energy. On the other hand, the gross value of fixed assets presents a reverse picture in Csongrád county, where it grew to nearly its double /by 93 %/, while in Bács county it grew by 75 % and in Békés county "only" by 44 %.

This varied rate of growth is in agreement with the possibilities of the district. In Bács and Békés counties, where there is still a considerable manpower reserve, industrialization has been of an extensive character. In Csongrád county, however, it is becoming more and more of an intensive character. /This refers chiefly to Szeged as the growth of employment in the districts and the smaller towns as Makó, Szentes, Csongrád, etc. was similarly high as in the two neighboring counties./ The outstanding rates of Csongrád county and next after it Bács county regarding the growth of fixed assets are explained by the rapid development of the crude oil and natural gas exploitation.

The above-mentioned differences of development have noticeably changed the rates of the three counties as compared with each other. The rate of Csongrád county regarding the number of those employed /Table 4/ and the electric energy used considerably decreased /by 3 %/, while ragrding the gross value of fixed assets it increased its advantage by 6 % at the expense of Békés county /with a decrease of 6,2 %/.

Table 4.

Those employed in the socialist industry /1963-69/ Southern Great Plain

County	1963		1964		1965		1966		1967		1968		1969	
	persons	%	persons	%	persons	%	persons	%	persons	%	persons	%	persons	%
Bács-Kiskun	40.355	33.6	44.102	33.7	44.032	33.1	45.134	32.8	48.838	32.9	55.784	33.1	59.947	33.8
Békés	30.517	25.3	33.589	25.7	34.735	26.1	36.241	26.3	40.051	27.0	46.618	27.7	48.855	27.5
Csongrád	49.528	41.1	53.073	40.6	54.283	40.8	56.381	40.9	59.595	40.1	65.953	39.2	68.580	38.7
Total	120.400	100	130.764	100	133.050	100	137.756	100	148.484	100	168.355	100	177.382	100

The differences in the development of the towns and districts are not surprising as their conditions are quite different and the districts represent much lower levels. The number of industrial workers per 1,000 inhabitants is 54,7 persons in the district as against 238,3 persons in the towns. Thus a mechanical comparison of the rates of development leads to unsound generalizations. On the other hand, it makes it possible for us to draw a few conclusions.

In 16 districts of the southern Great Plain the growth of the number of those working in the industry shows considerable differences ranging from 2 % to 138 % in the period 1965-1969 /Fig. 8/. The extremely high values in the case of the districts of Kiskunfélegyháza /139 %/ and Orosháza /105 %/ are due to the development of natural gas and crude oil exploitation and the development of small plants based on agricultural raw materials. The unusually high indexes /67 to 78 %/ of the districts developing at a higher than average rate /the districts of Szentes, Kecskemét, Gyula, Kiskunhalas and Szarvas/ find their explanXation first of all in the development of the food industry and the cooperative industry. On the other hand, from the slow growth of employment in the districts of Kalocsa /2 %/, Makó /16 %/ and Baja /18 %/ it does not follow uniformly that the industry is stagnant, for in the district of Makó the value of fixed assets rose threefold, the use of electric energy twofold. The situation is essentially the same in the district of Kalocsa too. /The gross value of fixed assets grew by 53 %, the use of electric energy by 102 %./ Only in the case of the district of Baja are all the indexes pretty low.

The rapid rise of the technical indexes in the district of Makó is due to oil mining.

There is little connection in the districts between the rise in the number of those working in the industry and the already existing degree of industrialization; only the district of Békés represents a higher level, twice as high as the average, and at the same time a lower growth rate /Fig. 9/.

The growth rate of the gross value of fixed assets in the district shows a much more varied picture than we have seen in the case of the number of those employed /Fig.10/. The extreme values are of course due to the considerable amount of investment stocks necessary for the exploitation of crude oil and natural gas. It is interesting that the districts of Orosháza and and Mezőkovácsháza figure with even lower than average indexes because the majority of the investments connected with the exploitation of hydrocarbon were made in an earlier period, and regarding the value of value of fixed assets per head they thus stand far out among the other districts in 1965.

The growth of industry in 1965-1969 /Southern Great Plain/

	Electric energy used	Gross value of fixed assets	Number of those employed
Districts	162,1	207,0	144,1
Towns	148,7	150,7	123,6

In consequence of this the proportions changed in favor of the districts:

	Electic energy used		Gross value of fixed assets		Number of those employed	
	1965	1966	1965	1966	1965	1966
Districts	17,5	21,4	23,9	27,8	23,6	24,8
Towns	82,5	78,6	76,1	72,2	76,4	75,2

In evaluating the figures certain circumstances must absolutely be taken into consideration.

a/ The real difference in the given figures is by about 2 % greater in favor of the districts because in 1965 Szarvas figures in the data of the districts and in 1969 in the data of the towns.

b/ The quick growth of the fixed assets and the associated great rise in the case of the districts are connected with the development of the natural gas and crude oil exploitation. If we set apart the two districts rich in hydrocarbon /the districts of Szeged and Kiskunfélegyháza/ then we receive quite different results. Thus for instance the gross value of fixed assets in comparison with the towns fell from 22,5 % to 20,6 %, the value of the electric energy used remained unchanged at 16 %, and only the number of those employed grew. In spite of the fact that in some districts the growth of the number of those employed was very slow /e.g. in the districts

of Kalocsa, Baja and Makó/, the data prove that in the majority of the districts of the region the rapid industrial development was of extensive character and took place mainly by the creation of new workplaces.

c/ The industrial development of the districts was chiefly based on the free manpower and was intended to employ it. The positive effect of this is perceptible in the substantial decrease of the migration out of the area, although undoubtedly this is not the only cause of the mobility of the rural population.

d/ The coefficient of correlation between the number of those employed in the industry /1965/ and the growth rate of employment /1965-69/ is negative in the region; $r = -0,52$, that is to say that where the number of those employed was greater, the rate of growth was smaller. The number of those employed accounts for 27 % of the growth rate. If the number ofindustrial workers calculated for 1.000 inhabitants increases by one person, this causes a 0,19 % decrease in the growth rate. In the relation of the districts this correlation is much looser and therefore negligible.

e/ Apparently these two processes were at work in the industrial development of the districts; one was the investments connected with the exploitation of hydrocarbon which are of national importance, the other was the cooperatives and the smaller workplaces created by the building of small factories based on the local possibilities, manpower and agricultural raw materials which serve chiefly local purposes. The growth rate of both tendencies is li-

kely to decrease in the future. The number of those employed in the exploitation of hydrocarbon will not grow essentially, and the increase of the number of those working in the local cooperative ancillary plants and in the cooperative industry is also limited. The dimensions of the latter are limited by the manpower reserve and the local market conditions. In case it became oversized, it might disturb the manpower supply of much more productive industry and even agricultural production. The dimensions and methods of socialist industrialization should not be limited to the level of districts and the material means should not be dispersed between the districts. The larger investments must be concentrated on certain places and the main part of the necessary manpower must still be supplied by the agricultural areas. Therefore we cannot approve of the tendency that every district should try by all means to employ the manpower reproduced or become free on its territory. The territorial "redistribution" of manpower can be realized rationally on a higher leven than that of the districts, e.g. on the level of mesoregions.

Industrial development is undoubtedly one of the most important elements of urbanization; therefore it is worth while to record the changes that have taken place in the last ten years. The growth of the urban population of the district in 1960 to 1970 remained far below the national average with only 13,3 %. However, a very important change is behind this apparently small growth: in 1960 the migration balance of 7 towns out of 14 was still negative, in 1965 it was negative in 5, and in 1970 migration into all of these towns exceeded the number of those moving out.This means that behind the 13,3 % growth there is also the modest growth of the population of the smaller towns, but as it is the beginning of a

process opposed to the earlier one, it is a very important phenomenon.

The rapid industrial development of the towns of the district is indicated by the growth of the number of those working in the industry per 1.000 inhabitants. This number was only 139,5 persons in 1960, 183 persons in 1965, and in 1969 it was already 228,5 persons, which is a change of 63 %. In terms of absolute numbers the growth was somewhat faster: 71.565, 98.976, 132.373 persons respectively, which means a change of 85 %.

The quick industrial development makes itself felt of course first of all in the growth of the urban population, but later on it will favorably influence the process of reproduction of the population, the composition of the population, and many factors of urbanization.

The regularity in the rate and dimensions of the industrial growth is primarily connected with the oder of magnitude of the towns /Table 5/.

Table 5

Correlation coefficient of the towns of the southern Great Plain between the number of the population and the development of industry

With Orosháza					
	Population	Employment industry	Electric energy consumption per head	Motive power per head	Value of fixed assets per head
Population	-	-0,61	0,35	0,52	0,24
Employment industry	-	-	0,10	-	0,18

Without Orosháza					
	Population	Employment industry	Electric energy consumption per head	Motive power per head	Value of fixed assets per head
Population	-	-0,61	0,58	0,74	0,34
Employment in	-	-	0,52	-0,85	0,09

/In consequence of the establishment of a glass factory Orosháza figures with extreme values in all respects, but especially in the technical indexes; this is why it is proper to set the town aside in determining the general tendency./

a/ The growth of the number of those employed in the industry is inversely proportional to the order of magnitude of the towns. The coefficient of correlation between these two factors is r = -0,61, i.e. the number of population influences the change in industrial employment in a measure of 37 %. If the towns are classified in order of magnitude it will be seen that the growth was most intense in the lower categories and weakest in the higher categories.

b/ Directly proportional to the order of magnitude of the towns is the growth of motive power. The coefficient of correlation between these two factors is r = 0,74, that is, the connection is fairly close. /Table 6/.

c/ The correlation can be demonstrated also between the

1/ size of the towns and the use
2/ of electric energy per worker and the growth
3/ of the gross value of fixed asset,

/r = 0,58 and 0,34/ but is somewhat weaker than in the case of motive power.

d/ It follows logically from what has been said that the rate of the growth of motive power was contrary to the rate of growth of the number of the industrial workers; the

correlation coefficient between the two is r = -0,84, its value is negative, i.e. it is inversely proportional.

It appears from the table that from the point of view of the growth of the number of industrial workers practically three groups form similarly to the network of settlements: the group of towns with 20-30 thousand inhabitants where the growth of the population was very rapid, but the growth of the motive power calculated for those employed was very small; then the group of middlesized towns /with up to 50-80 thousand inhabitants/, where the industrial development is better balanced and the change of both indexes comes near to the average of the region, and finally in the case of Szeged the slow growth of the number of industrial workers was combined with a very rapid growth of motive power. The conclusion that can be drawn from the tendency here described is important from several points of view:

1/ The industrial development of the region in the 60's was quite different from what it had been in earlier decades. It was first of all the small towns /with 20-30 thousand inhabitants/, i.e. 10 out of the 14 towns of the region, that suffered on account of the slowness of the industrial development of the earlier period. The effect of this is still strongly felt in the reproduction of the population. /In 1969 the figures of the natural growth of the population were negative in 5 towns of the country and all of then were towns of this region./
The natural growth of the population in the sixties, as compared with the preceding decade, decreased in a much greater measure than the national average. /from 5,4 % to 1,1 %/.

Table 6.

The growth of the number of industrial workers and the growth of motive power in the urban areas of the southern Great Plain in order of magnitude

Population group /1000 pers./	Year	Total population	%	Number of industrial workers	%	Industrial workers per 1000 inhabitants	%	Motive power per worker	%	With-out Orosháza
100-120	1960	98.942		23.225		230		1.2		
	1965	113.595	114.8	29.554	127.1	266	115.6	1.7	145.9	
	1969	118.490	104.3	34.250	115.9	288	108.3	2.6	150.5	
Total	1960-1969		119.7		147.5		125.2		219.6	
50-80	1960	170.456		24.315		143		1.4		
	1965	177.813	104.2	32.898	135.3	185	129.3	1.8	123.8	
	1969	185.689	104.4	44.220	134.4	238	128.6	2.1	115.5	
Total	1960-1969		108.8		181.8		166.4		142.8	
30-40	1960	157.330		15.205		96		1.3		
	1965	159.281	101.2	22.200	146.0	139	144.8	1.7	131.2	118.8
	1969	164.422	103.2	31.355	140.7	190	136.7	2.3	137.7	120.5
Total	1960-1969		104.5		205.5		197.9		180.9	143.3
15-30	1960	104.098		10.068		96		1.3		
	1965	106.536	102.3	16.426	163.1	154	160.4	1.5	105.7	
	1969	110.526	103.7	22.688	130.0	205	133.1	1.4	95.9	
Total	1960-1969		106.1		225.1		213.5		101.4	

In consequence of emigration from the area the proportion of the older age groups grew and of courese the mortality rate index too, but as this has been exceeded in the last years by the number of births, a tendency contrary to that of the preceding decade begins to prevail, i.e. the natural growth of the population is slowly increasing. It is interesting that this process varies according to the categories of the towns. In the case of Szeged the mortality rate has remained unchanged, and thus the natural growth of the population has increased here most. Similarly positive is the change in the next two groups. In the lowest category, however, there has been no essential change in spite of the growing birth rate because the mortality death rate is very high here.

The connection between the demographic indexes described above and the rate of industrial development is evident and it even indicates the phase difference. The change took place in every respect first in the large towns and thus it can with good reason be expected that the changes of the last years will restore the demographic balance also in the towns belonging to the lowest category.

The slowness of industrialization in earlier decades did not favor the communal development of the small towns either, and thus they remained far behind in the building of apartment houses, the equipment of the apartments, the development of the network of streets, etc. This harmful, extremely unfavorable process was halted by the quick industrial development of the last period, the effect of which is alre-

ady noticeable /the amount of communal investments has considerably grown, etc./, but its full working can be expected in the future.

2/ The great growth of the number of industrial workers was not accompanied by a similar growth of motive power expecially in the small towns. It clearly follows from the different tendency that while in the larger towns, especially in Szeged /where the growth of motive power per one person employed rose twofold/, besides the creation of new workplaces the technical development /reconstruction in the majority of the plants/ is also on the proper level, in the lower categories it was nearly exclusively the extensive method of industrialization that prevailed; the aim was to create new workplaces, therefore a number of industrial plants with little manpower requirement were built or the already existing ones were enlarged.

In the present phase of the development when useful employment of the free manpower, quick production or marketing of articles in short supply, decentralization of certain branches of the food industry or territorial distribution of the working processes in order to bring processing nearer to the raw material present problems in the district and the development of the small towns is a headache and a heavy burden, it is understandable that the extensive method of industrialization seemed to be the most practical. We must realize, however, that this method is limited in time and in respect of possibilities and that in the future it can be used with less and less efficiency.

Table 7.

The demographic indexes of the towns of the southern Great Plain

Population	Population total 1000 persons		Number of births				Number of deaths				Nat. growth of pop.				Nat. growth of pop. 1950-60		1960-70	
	1960	1969	1960	‰	1969	‰	1960	‰	1969	‰	1960	‰	1969	‰	persons	%	persons	%
100-120	100	118	1114	10.2	1684	14.2	1122	11.3	1345	11.3	-108	-1.1	339	2.9	3691	4.3	501	0.5
50-80	171	186	2261	13.2	2827	15.2	1812	10.6	2103	11.3	449	2.6	724	3.9	13011	7.6	4912	2.6
30-40	157	164	1904	12.1	2274	13.8	1970	12.5	1997	12.1	-66	-0.4	277	1.7	6993	4.4	265	0.2
16-130	104	111	1353	12.9	1503	13.5	1242	11.9	1522	13.7	111	1.0	-19	-0.2	5104	4.9	498	0.4
Total	532	579	6532	12.3	8288	14.3	6146	11.6	6967	12.0	386	0.7	1321	2.3	28799	5.4	6176	1.1

The conditions are different from town to town and from district to district. There are essential differences in the employment of manpower depending on the structure of the agriculture, the attraction of larger towns, transport, etc. Accordingly, significant differences can be found in the conditions of the industry and even in the conditions of the development of the network of settlements. The territorial development plans reckon just with these differences when they try to take into account the possibilities and suitable methods of development in each area unit separately.

It is not enough to survey the problems of the development of the economic life on the level of regions or subregions. This would provide sufficient information only for the preparation of national plans. The long-term plans of the local directing organs can be prepared only if the natural and social conditions influencing the economic and social processes are known with all their differences.

Do we have the suitable body of knowledge for this? Are the possibilities of economic development explored in every micro-region? Unfortunately these things are only partly known.
In the near future the solution of a host of problems must be worked out; the balance of manpower on the level of micro-regions must be drawn up, the attraction spheres of the towns /together with the villages becoming urbanized/ must be determined, the possibilities of these units must be surveyed especially from the point of view of the development of the industry. The tendencies of development, the rate and method, etc. of the development of each settlement or micro-region can be determined only with a concrete

knowledge of the local possibilities, taking care that the development of the specialization based on the conditions of the region should not overshadow the exploitation of the local possibilities and vice versa and that the too wide use of local small plants should not interfere with the vigorous development of the modern socialist industry and agriculture. It is evident that the rise of the country and of the economic region is determined by the latter.

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Figures

Fig. 1: The cumulated rank of the different counties according to the number of those employed in the socialist industry.

I. Industrially well developed counties
II. Industrially moderately developed counties
III. Industrially underdeveloped counties
I a./ 1963, b./ 1965, c./ 1969.

1. Budapest and Pest, 2. Komárom, 3. Győr-Sopron, 4. Borsod, 5. Veszprém, 6. Nógrád, 7. Csongrád, 8. Baranya, 9. Fejér, 10. Vas, 11. Heves, 12. Zala, 13. Szolnok, 14. Békés, 15. Tolna, 16. Bács-Kiskun, 17. Hajdu-Bihar, 18. Somogy, 19. Szabolcs-Szatmár.

Fig. 2: The growth and national rate of investments in industry /southern Great Plain/

Fig. 3: The change of the number of those working in the socialist industry and the change of its national rate in the southern Great Plain

y = 1000 persons
x = year

Fig. 4: The ratio of sectors in the industry of the southern Great Plain /1969/ on the basis of the number of workers employed in the industry compared with the national value calculated for 1.000 inhabitants.

100 % = national value calculated for 1.000 persons
1. ministerial, 2. council, 3. cooperative, 4. private industry

Fig. 5.: The structure of the industry of the southern Great Plain on the basis of the number of industrial workers compared with the national value calculated for 1.000 inhabitants

Fig. 6.: The number and national rate of those employed in heavy industry /1963-1969/

x = years

y = 1.000 persons

Fig. 7.: The structure of socialist industry /in the southern/ Great Plain/ and its relation to the national values calculated for 1.000 inhabitants

I. number of industrial workers

II. electric energy used

III. gross value of fixed assets

1. mining,
2. electric energy industry,
3. metallurgy,
4. production of machines and mechanical equipment,
5. production of vehicles of transport,
6. electric industrial machine production,
7. telecommunication and technical equipment production,
8. instrument production,
9. metal mass article production,
10 building material production,
11 chemical industry,
12 wood-working industry,
13 paper industry,
14 printing industry,
15 textile industry,
16 leather, fur, and shoe industry,

17 textile clothing industry,
18 other industries,
19 handicraft and domestic industry,
20 food industry.

Fig. 8: The growth of those working in the industry in different districts and towns /1965-1969/

1 = 0-10 % 2 = 10-20 % 3 = 20-30 %
4 = 30-40 % 5 = 40-50 % 6 = 50-60 %
7 = 60-70 % 8 = 70-80 %
9 = more than 80 %.

Fig. 9: The number of industrial workers /in 1965-1969/ and their proportion calculated for 1.000 inhabitants /1969/

1 = 40 persons 2 = 40-50 persons
3 = 50-60 persons 4 = 60-70 persons
5 = 70-80 persons 6 = 80-90 persons
7 = 90-100 persons 8 = 100-150 persons
9 = 150-200 persons 10 = 200-250 persons
11= 250-300 persons 12 = more than 300 persons.

Fig.10: The percentile growth of the gross value of fixed assets per head of population /1965-1969/

1 = 0-110 % 2 = 110-120 % 3 = 120-130 %
4 = 130-140 % 5 = 140-150 % 6 = 150-160 %
7 = 160-170 % 8 = 170-180 % 9 = 180-200 %
10= more than 200 %.

Fig. 11: The gross value of fixed assets per head of population /in 1969/ and its rate of growth /1965-69/ in the southern Great Plain

I. in towns, II. in districts

1 = 2.000 Ft
2 = 2.000-4.000 Ft
3 = 9.000-10.000 Ft
4 = 10.000-15.000 Ft
5 = 15.000-20.000 Ft
6 = 20.000-25.000 Ft
7 = 25.000-30.000 Ft
8 = 30.000-35.000 Ft
9 = more than 35.000 Ft.

Fig. 12: The correlation between the changes in the population and industrial employment

Fig. 13: The correlation between the growth of industrial employment and the change of the motive power per one person employed

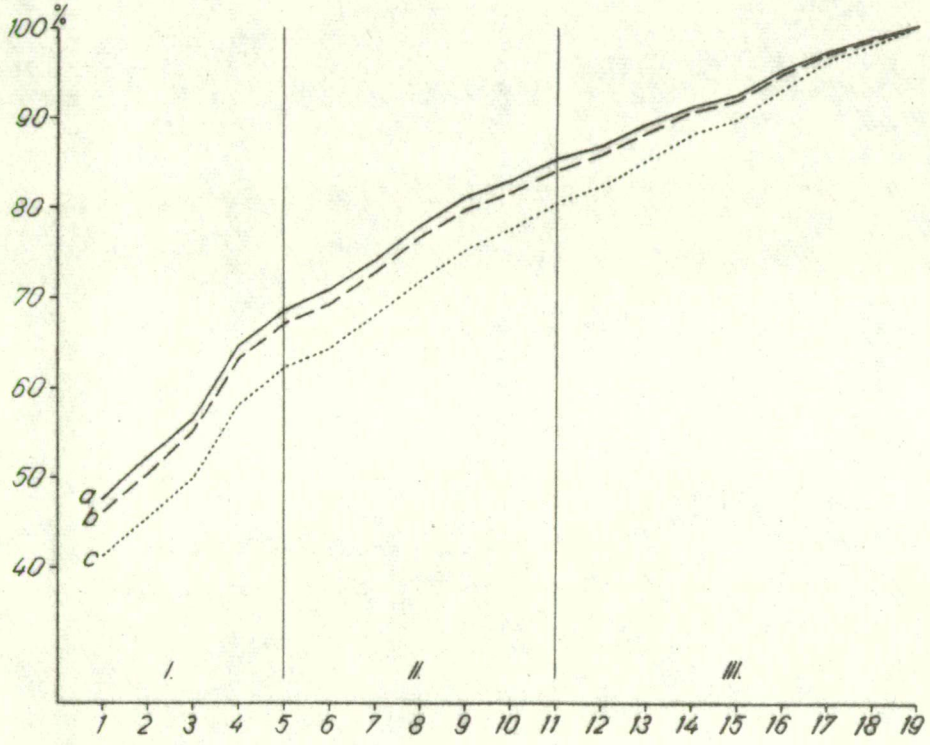
100%
90
80
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Fig. 1.

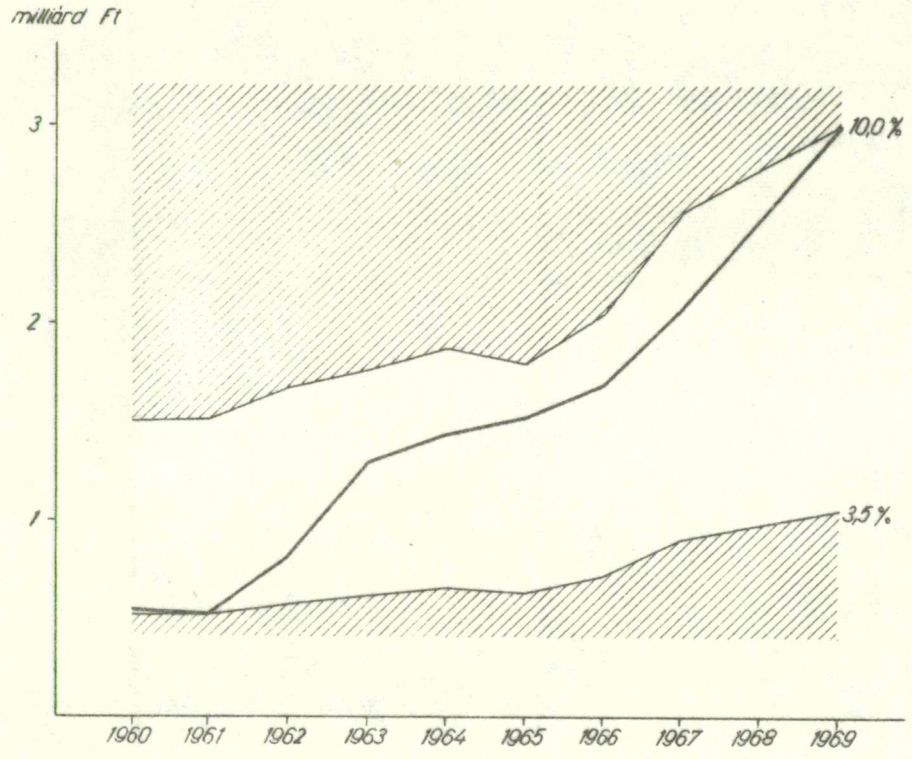
milliárd Ft
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Fig. 2.

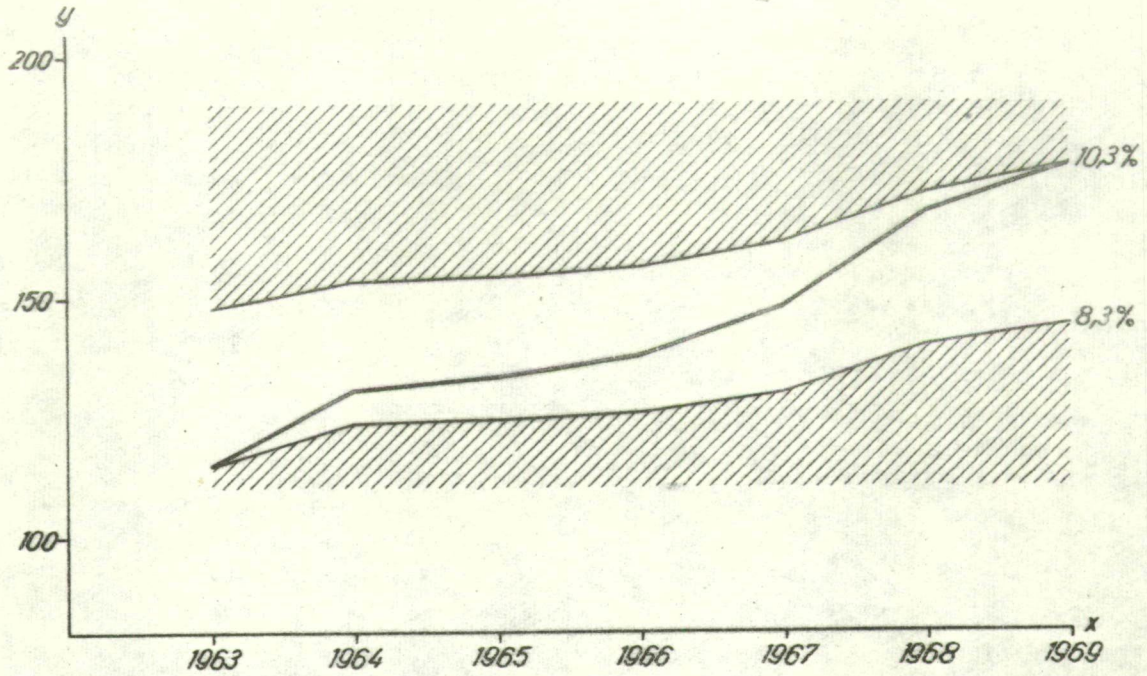


Fig. 3.

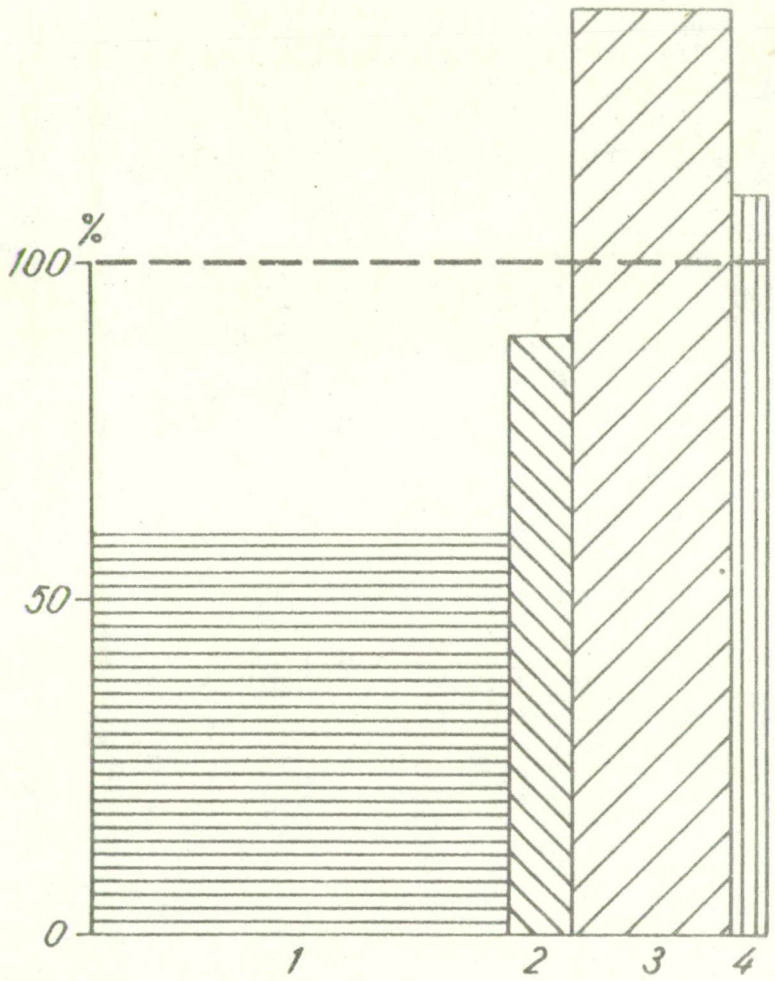


Fig. 4.

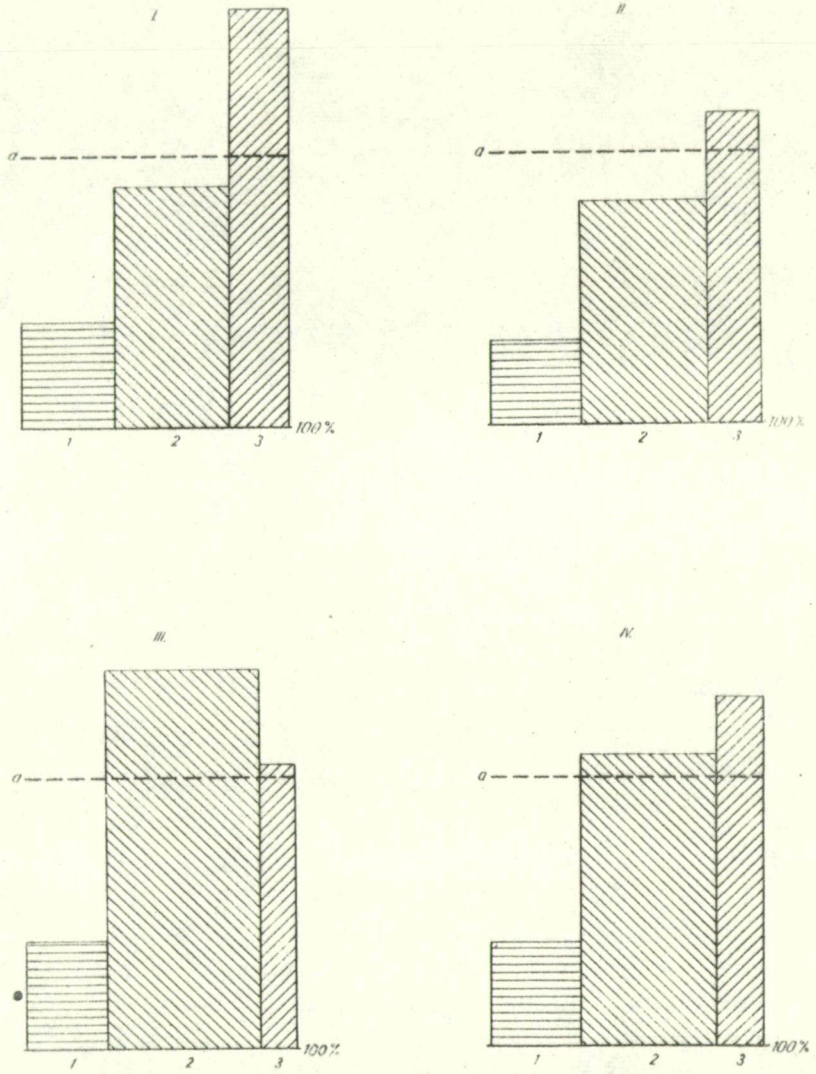


Fig. 5.

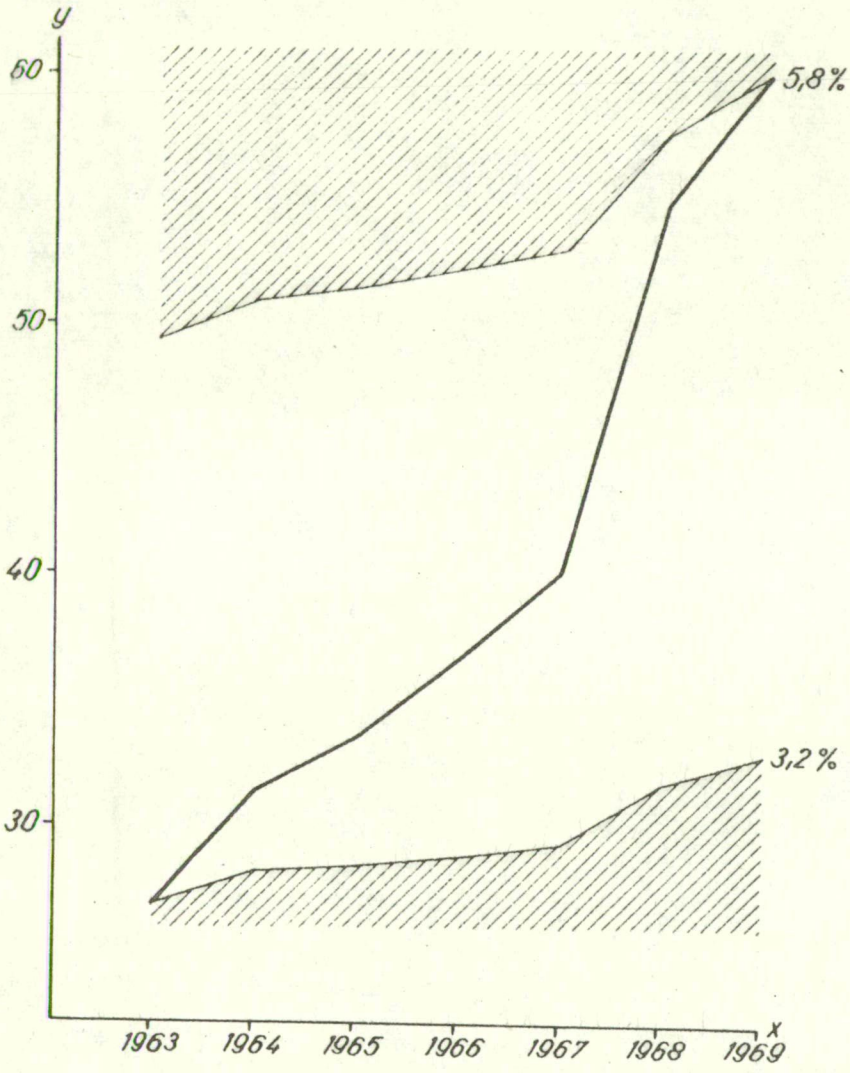


Fig. 6.

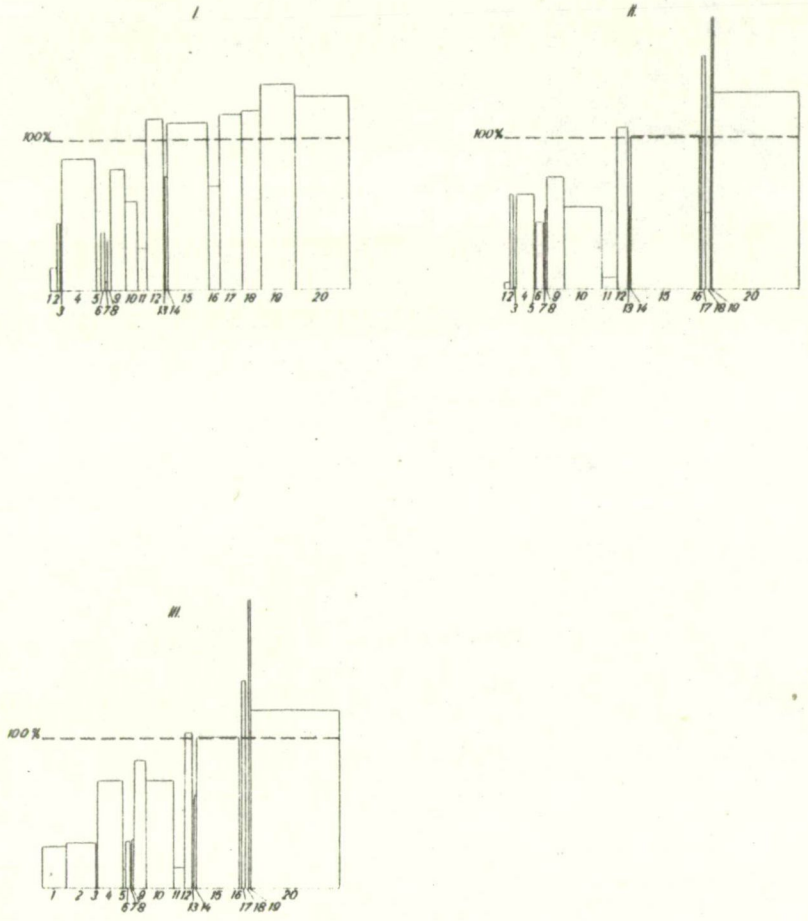
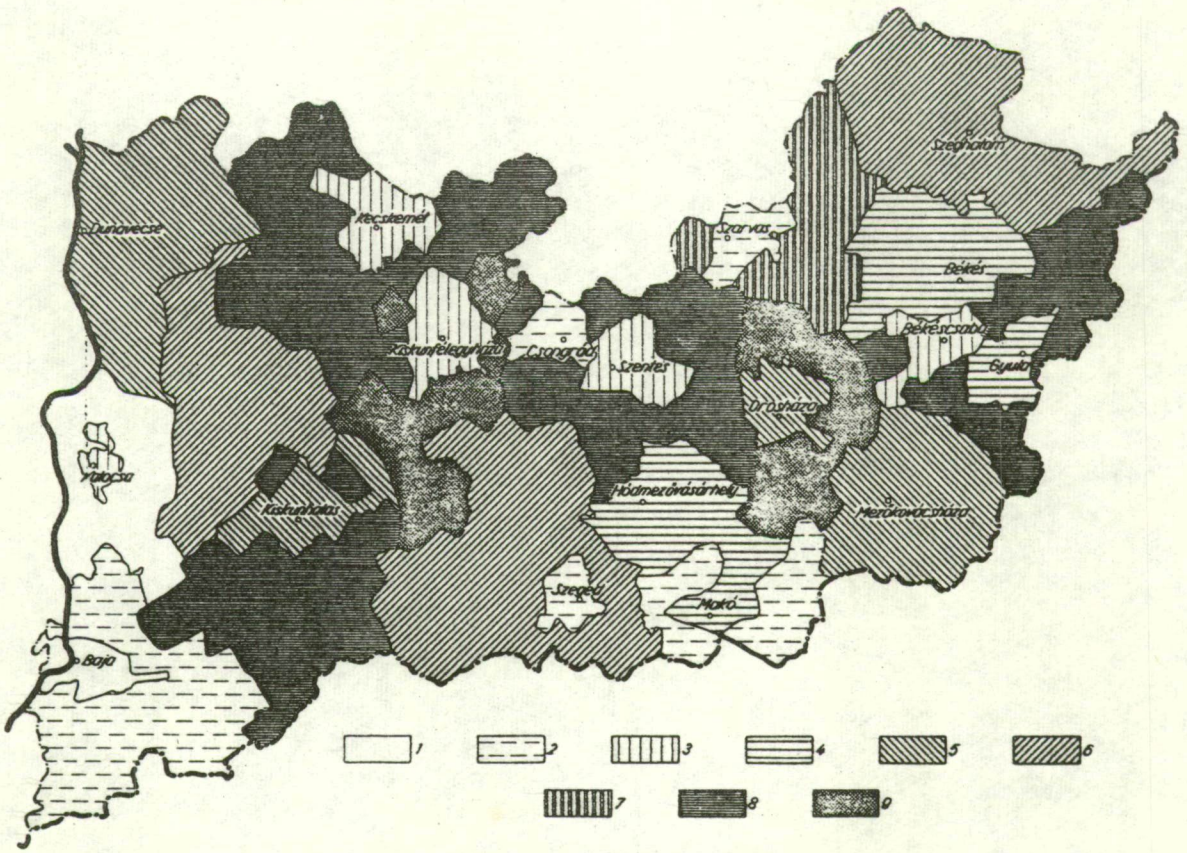

I.
100%
1 2 4 5 9 10 11 12 15 16 17 18 19 20
3 6 7 8 13 14
II.
100%
1 2 4 6 9 10 11 12 15 16 20
3 5 7 8 13 14 17 18 19
III.
100%
1 2 3 4 5 9 10 11 12 15 16 20
6 7 8 13 14 17 18 19

Fig. 7.


Szeghalom
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Szarvas
Békés
Békéscsaba
Gyula
Kunfélegyháza
Csongrád
Szentes
Orosháza
Hódmezővásárhely
Mezőkovácsháza
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Fig. 8.

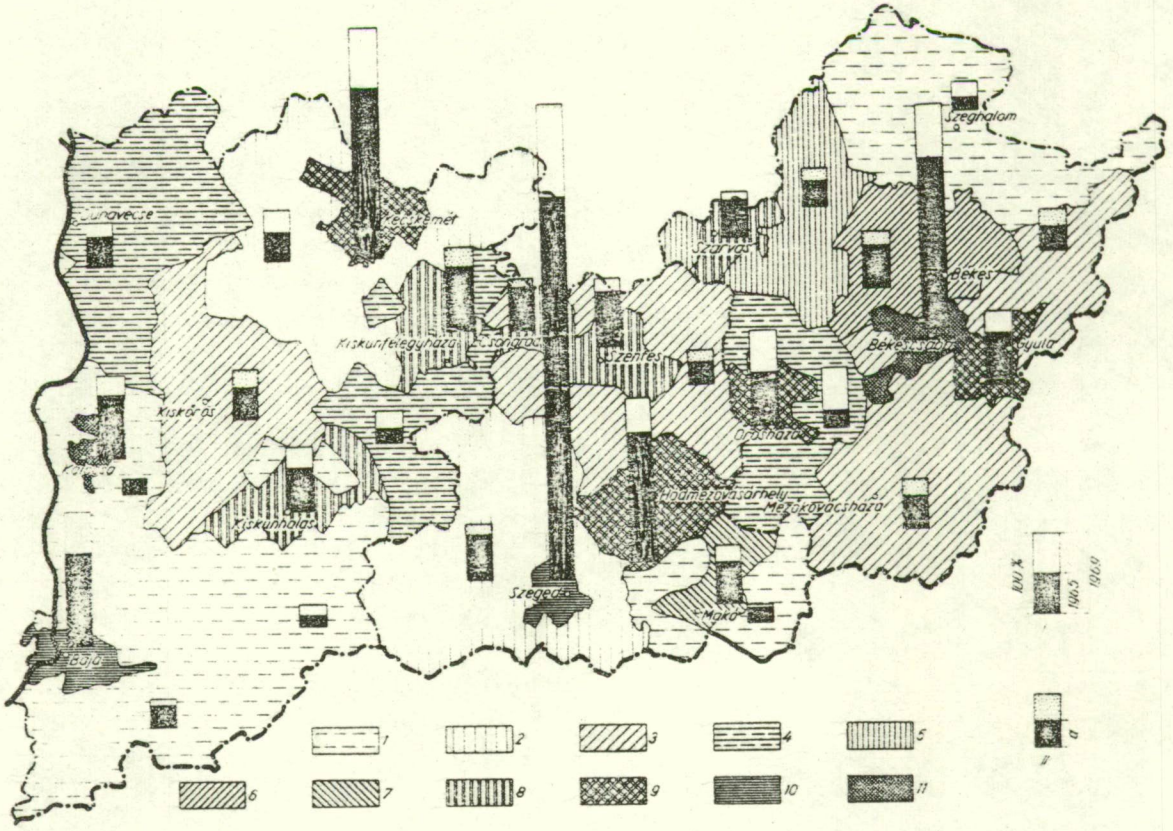
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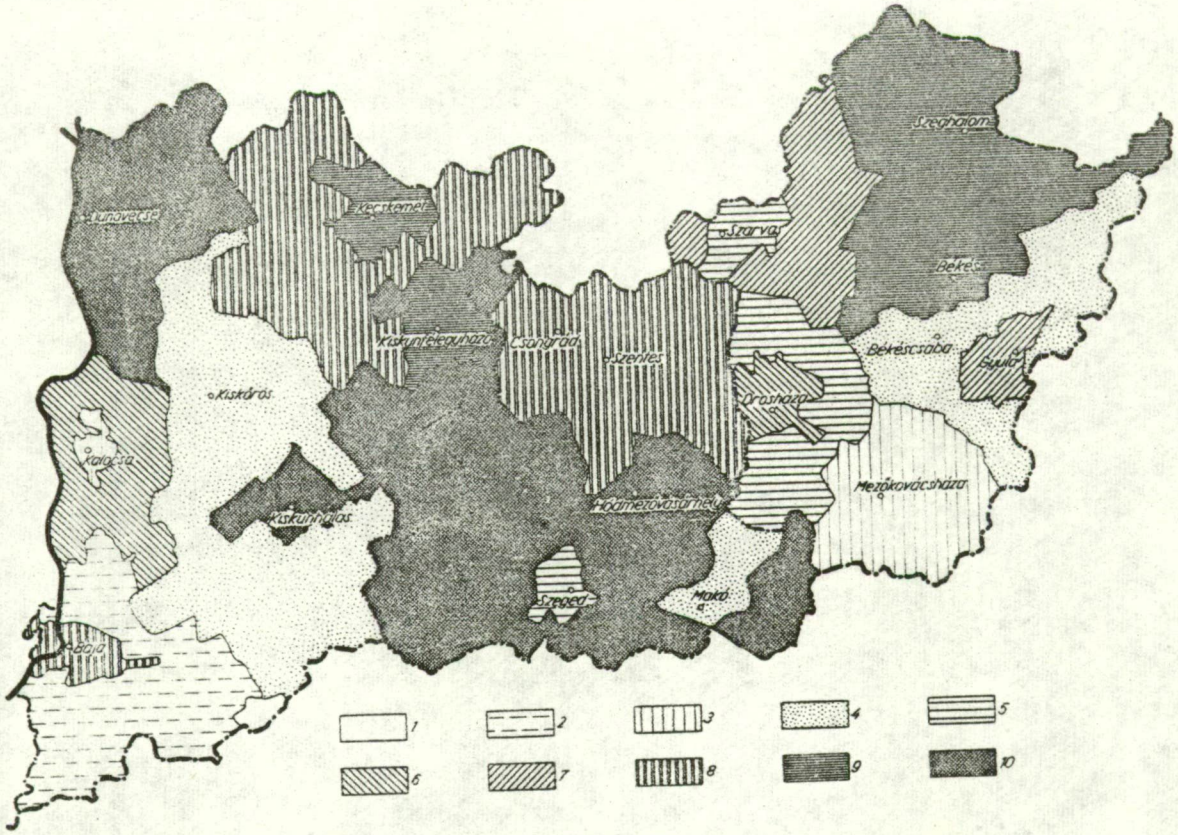
Fig. 9.


Szeghalom
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Csorvás
Szentes
Békéscsaba
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Kiskörös
Kalocsa
Mezőkovácsháza
Kiskunhalas
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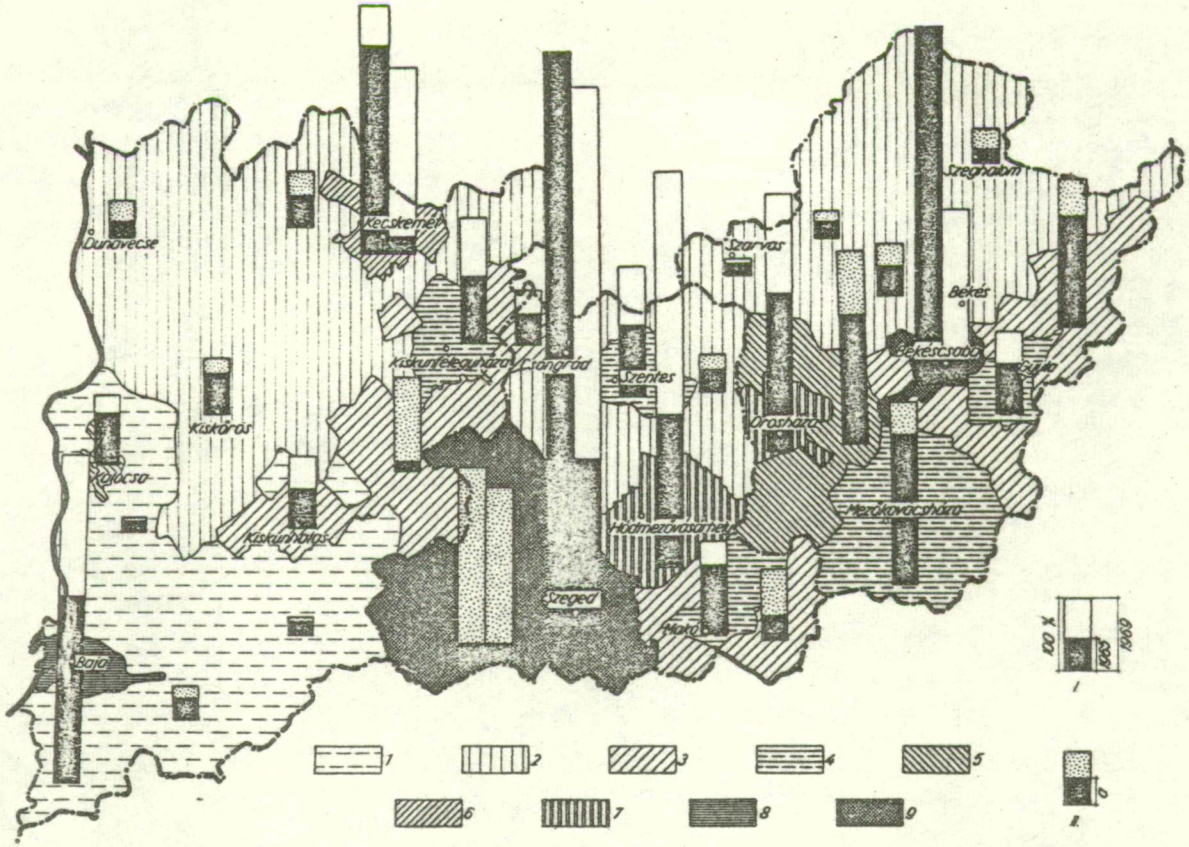
Fig. 10.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Kiskőrös
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Kiskunhalas
Kiskunfélegyháza
Szentes
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Hódmezővásárhely
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Mezőkovácsháza
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Fig. 11.

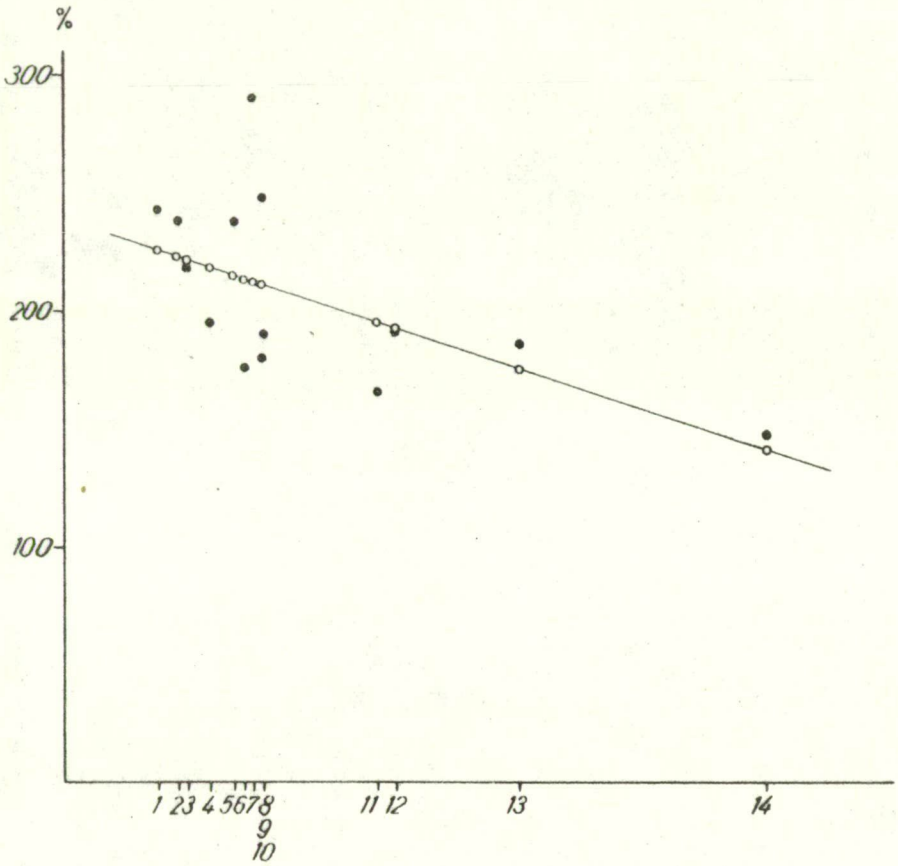

Fig. 12.

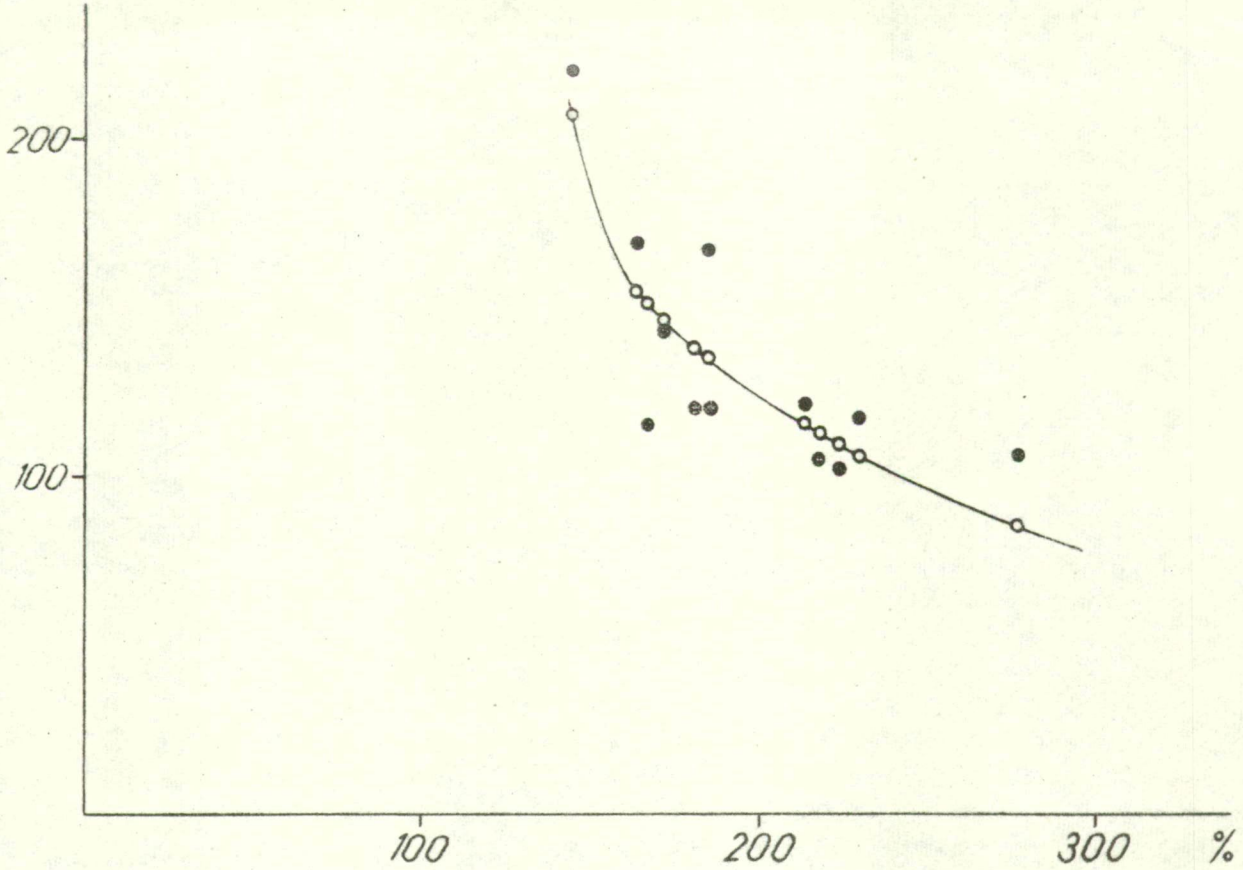

Fig. 13.

PŘÍSPĚVEK K METODICE GEOGRAFICKÉ RAJONIZACE ZEMĚDĚLSTVÍ NA PŘÍKLADU SEVEROMORAVSKÉHO KRAJE

G. K r u g l o v a

Československá Akademie Věd
Geografický Ústav v Brně
/Československá/

Geografická rajonizace zemědělství Severomoravského kraje je součástí širšího úkolu, jehož cílem bylo vymezení relativně homogenních zemědělských oblastí v celé České republice na základě charakteristik jednotlivých socialistických zemědělských závodů. Z čistě praktických /zčásti i metodických/ důvodů jsme při zpracování postupovali podle jednotlivých krajů. V úvodním stadiu byla připravena jednotná rámcová metodika a stanovena jednotná soustava výchozích statistických ukazatelů pro všechny kraje. Na jejich základě byly textově i kartograficky jednotně zpracovány jednotlivé kraje ČSR. Kromě tohoto základního zpracování měli jednotliví řešitelé možnost použít dalších statistických ukazatelů, experimentovat metodicky, respektovat specifické zvláštnosti jednotlivých krajů i vypracovat variantní řešení některých regionů a subregionů. Jedním z příkladů takového širšího zpracování je území Severomoravského kraje.

Ukazatele a hlavní kriteria zemědělské rajonizace Severomoravského kraje.

Rajonizace zemědělství na území Severomoravského kraje /jakož i celé ČSR/ vychází z podrobného statistického zpracování výsledků výrobní činnosti jednotlivých zemědělských závodů v průměru let 1963-1965.* Ve zpracovaných metodických směrnicích pro celé území ČSR byly z celého komplexu statisticky šetřených informací vybrány ukazatele, které podle našeho názoru nejlépe odrážeji zaměření zemědělské výroby. Strojně početním zpracováním jsme získali jednotný systém kombinací a relací různých ukazatelů.

Charakteristika zemědělské výroby kraje byla provedena na základě analýzy velkého počtu ukazatelů a jejich vzájemných vztahů. Byly použity jednak ukazatele strukturální, které nejlépe obrážejí kvantitativní a kvalitativní vztahy mezi jednotlivými odvětvími zemědělské výroby a jejich charakter, jednak ukazatele intenzity, znázorňující výkonnost zemědělských závodů na jednotku plochy. Kromě hodnotových ukazatelů byla aplikována i jiná kritéria, jako např. stupeň zornění, struktura kultur a osevních ploch, skladba domácích zvířat v přepočtu na VDJ aj. Při detailnějším rozboru se ukázalo, že mnohé z těchto kritérií mají v některých případech podstatně větší význam pro typologii zemědělství než ukazatele hodnotové. Navíc tato kritéria eliminují vlivy cenových změn a umožňují tak srovnání v mnohem delších časových řadách.

Potřebujeme takové územní členění, které by zůstalo v platnosti pokud možno delší dobu, tj. relativně stabilně obráželo územní rozdíly v zemědělství. Všechny

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* Bylo k tomu třeba soustředit a zpracovat statistické informace celkem za 704 socialistických zemědělských závodů /z toho 651 JZD, 32 státních statků, 9 ústředně řízených zemědělských závodů a 12 školních statků/. Vzhledem k tomu, že soukromý sektor obhospodařuje na území kraje pouze 9,5 % zemědělské půdy a nejsou k dispozici dostatečně podrobné statistické údaje, nemohl být vzat v úvahu.

kvantitativní ukazatele zachycují přirozeně dočasný, měnící se stav. Na ukazatele struktury zemědělské výroby mají velký vliv různé nahodilosti /např. klimativké podmínky/. Proto bylo nutno použít víceleté průměry /v r. 1963-1965/, ktere zčasti eliminují tyto výkyvy.

Charakteristika zemědělské výroby vycházela z následujících skupin ukazatelů:

1. Z ukazatelů, charakterizujících přírodní a ekonomické podmínky výroby; především z charakteristiky přírodních předpokladů podle typů přírodních stanovišť, podílů ploch jednotlivých kultur na celkové rozloze zemědělské půdy, hodnoty základních prostředku na 1 ha zemědělské půdy, výměry zemědělské a orné půdy na 1 stálého pracovníka v zemědělství, počtu VDJ na 100 ha zemědělské půdy.

2. Do druhé skupiny jsme zařadili ukazatele, obrážející strukturu a výrobní zaměření zemědělství: strukturu osevních ploch, strukturu hrubé zemědělské produkce, strukturu tržní produkce, strukturu živočišné výroby ve VDJ a podíly jednotlivých rajonů na zemědělské výrobě kraje.

3. Do třetí skupiny jsou zahrnuty ukazatele, charkterizující objem produkce i intenzitu a produktivitu zemědělské výroby. Patří k nim: produkce na 1 ha zemědělské a orné půdy, hrubá zemědělská produkce, výsledná zemědělská produkce, tržní produkce v přepočtu na 1 ha zemědělské půdy a na 1 stálého pracovníka, výrobní náklady na 1 ha zemědělské půdy.

4. Do čtvrté skupiny jsme zařadili ukazatele, které vyjadřují ekonomickou efektivnost zemědělské činnosti: hodnotu hrubé zemědělské produkce na 100 Kčs základních protředků, rentabilitu, hrubý důchod, vlastní náklady.

Převážná většina těchto údajů byla interpretována kartograficky. Byly vypracovány jednak analytické mapy rozmistění výroby jednotlivých produktů, jednak mapy syntetické a komplexní, znázorňující vzájemné relace a kombinace zkoumaných jevů. Poslední mapa znázorňuje vymezené zemědělské rajóny - konečný výsledek práce.

V závěrečné fázi prací se ukázalo, že ne všechny původně zvolené ukazatele, důležité pro obechou charakteristiku zemědělské výroby, lze chápat jako rajonotvorné faktory, umožňující vymezení územních celků v ČSR. Proto byla řada charakteristik v této fázi práce eliminována.

Při výběru kvantitativních ukazatelů - hlavních kriterií pro objektivní vymezení zemědělských rajónů - jsme vycházeli z předpokladu, že zemědělské rajóny obrážeji vždy pouze nejpodstatnější územní rozdíly v charakteru zemědělství.

Je třeba mít k dispozici takové kvantitativní ukazatele, jejichž kombinace by se mohly stát objektivní základnou pro vymezováni rajónů. Nesmí jich zřejmě být příliš mnoho; obrovský počet možných kombinací vedl by k vymezení nepřehledné třiště drobných územních celků. Ukazatele musí mít obecnější význam, musí být vhodné pro postiženi charakteristiky nejrůznějších výrobních typů zemědělství. Dospěli jsme k názoru, že pro efektivní vymezení zemědělských rajoňů na území Severomoravského kraje jsou z praktických důvodů nejlépe aplikovatelné tyto kvantitativní ukazatele jako hlavní kriteria, obrážející skutečné, podstatné rozdíly v typologii zemědělství:

1. Struktura hrubé zemědělské produkce, která výstižně charakterizuje územní diferenciaci zemědělské výroby.

2. Struktura tržní produkce jako ukazatel výrobního zaměření a specializace zemědělství.
3. Výše hrubé, výsledné a tržní zemědělské produkce na 1 ha zemědelské půdy jako ukazatel urovně intenzity zemědělské výroby.
4. Výše hrubé, výsledné a tržni zemědělské produkce v přepočtu na jednoho stáleho pracovníka v zemědělství jako ukazatel produktivity výroby.

Charakteristiky přirodních podmínek nezahrnujemo do této hlavní skupiny ukazatelů, podle nichž vymezujeme hranice zemědělských rajónů. Kdybychom postupovali jinak, zanášeli bychom již předem do řešeni úkolu teoreticky nesprávný předpoklad o rozhodujícím významu těchto podmínek pro rozmístěni zemědělství.

Relace mezi rostlinnou a živočisnou výrobou /měřenou hrubou zemědělskou produkcí/ se považuje ve světove ekonomickogeografické literatuře za jedno z nejvýznamnějších kritérií geografické typologie zemědělství. V československých podmínkách však v důsledku téměř dvacetiletého šablonovitého, nivelizujícího rozpisu plánu v zemědělství a problematické tvorby cen došlo k rozsáhlé deformaci přizozené územní specializace. Skutečnost je dnes taková, že na území Severomoravského kraje kolísají rozdíly mezi rostlinnou a živočišnou výrobou v rozmezí několika málo procent. /V celokrajském průměru se podíl rostlinné produkce na hrubé zemědělské produkci pohyboval v letech 1963-1965 od 49,5 do 41,6 % a živočišné od 50,5 do 58,4 %; celokrajský průměr nemusí být pochopitelně charakteristický pro jednotlivé zemědělské závody/. Tento ukazatel nebyl použit při vymezování rajónů jako jedno z hlavních kritérií, nicmeně byl ponechán v souboru ukazatelů pro obecnou charakteristiku vymezených zemědělských územních celků.

Metody vymezení zemědělských rajónů.

Práce na rajonizaci zemědělství Severomoravského kraje dokumentuje rostoucí úlohu široké škály metod /včetně kartografických/ v současných geografických výzkumech, při určování územní diferenciace zemědělských typů v různých rajónech.

Vymezování zemědělských celků podle nejmenších územních jednotek, tvorba celé serie /přes 50/ porovnatelných map předpokládá využití různorodých metod zpracování a interpretace statistických dat. Moderní přístupy zabezpečují přesnost a relativní objektivitu vymezených rajónů a přispívají k eliminaci chyb a překonání zastarávání materiálů.

Metody typologie zemědělských rajónů jsou dnes předmětem geografického studia v různých zemích. Práce na tomto tématu koordinuje komise pro typologii zemědělství při Mezinárodní geografické unii.

V našich podmínkách a při našich možnostech jsou, jak se ukázalo, nejlépe aplikovatelné metody používané polskými a sovětskými geografy. Některé z jejich přístupů, poněkud pozměněné a přizpůsobené podmínkami poměrně malého území /Severomoravského kraje/, byly použity v předkládané práci.

Výrobní typy závodů byly stanoveny na základě analýzy struktury jejich hrubé i tržní zemědělské produkce /v hodnotovém vyjádření/. Pro každou územní jednotku byla podrobně vyčíslena odvětvová struktura hrubé i tržní zemědělské produkce za období 1963-1965, a procentuální zastoupení všech odvětví na celkové produkci, rozdělené do deseti skupin: 1/ obiloviny, 2/ cukrovka, 3/ ostatní technické plodiny, 4/ brambory, 5/ krmné plodiny, 6/ zelenina a ovoce, 7/ mléko, 8/ hovězí maso, 9/ vepřové maso, 10/ drůbež a vejce.

Strukturální údaje o zemědělské produkci byly zpracovány na samočinném počitači s použitím kombinace metod Weavera a Coppocka, přizpůsobených pro naše účely. Výsledky byly pak porovnávány s klasifikací podle průměrných hodnot za ČSR, zpracovaných rovněž pro 10 skupin produktů.

Tak bylo na území kraje stanoveno přes 40 výrobních typů zemědělských závodů, a ty pak sjednoceny do 6 zemědělských oblastí. Velký počet výrobních typů na území kraje svědčí o mnohotvárnosti, územní diferencovanosti, vlivu přírodních činitelů, výrobních tradic, současného stavu výrobních sil, a zároveň i o nedostatečně výrazné specializaci v zemědělství.

K ověření a dokreslení získané charakteristiky zemědělských rajónů aplikovali jsme navíc metodu, navrženou prof. J. Kostrowickým a Dr. R. Szczesnym pro stanovení typů zemědělství ve světovém měřítku, vyzkoušenou na území Polska.

K získání přesnější a podrobnější klasifikaci na poměrně malém území jako je Severomoravský kraj byla tato metoda poněkud pozměněna a klasifikační stupnice přizpůsobena československým podmínkám.

Autorkou připravená stupnice zobecněných kvantitativních, ekonomických ukazatelů posloužila jako kontrolní škála k výhodnocení vymezených zemědělských rajónů a subrajónů a jejích vzájemnému porovnání s ohledem na republikový průměr. Tuto stupnici lze aplikovat při analogickém hodnocení ostatních zemědělských rajónů na celém území ČSSR.

Jako základ pro všechny ukazatele jsme vzali průměrné hodnoty za ČSR.

Ke zhodnocení každého z ukazatelů byla přijata pětistupňová škála, na níž republiková průměrná hodnota, rozšířené o ± 20 % tvoří druhý stupeň označený jako hodnota průměrná. Do prvního stupně jsme zahrnuli všechny hodnoty nižší /podprůměrné/. Horní hranice třetího stupně byla získána připočtením 50 % k základnímu průměru a označena jako mírně nadprůměrná. Tento stupeň má záměrně relativně menší rozsah; vytváří vlastně přechod mezi hodnotami průměrnými a nadprůměrnými. Do čtvrtého stupně byly zařazeny hodnoty až do dvojnásobku základního průměru a označeny jako stupeň nadprůměrný. Do pátého stupně /vysoce nadprůmerného/ patří všechny hodnoty více než o 100 % převyšující základní průměr. Hodnoty všech těchto ukazatelů jsou uvedeny v tabulkách č. 1 a 2.

Ukazatele intenzity, produktivity a rentability zemědělské výroby

Stupeň	Hrubá zemědělská produkce na 1 ha zeměd. půdy v Kčs	Hrubá zeměděl. produkce na 1 stálého pracovníka v Kčs	Tržní zeměděl. produkce na 1 ha zeměděl. půdy v Kčs	Výsledná celková produkce /v Kčs/ na 100 Kčs srovnatelných vlastních nákladů
1	do 5556	do 30652,7	do 3115,5	do 103,3
2	5557-8335	30652,8-45979,2	3115,5-4688,4	103,3-155,0
3	8336-10419	45979,3-57471,0	4688,5-5860,5	155,1-193,8
4	10420-13892	57471,1-76632,0	5860,6-7814,0	193,9-258,4
5	nad 13893	nad 76632,1	nad 7814,1	nad 258,5

Ukazatele základních výrobních podmínek pro zemědělství

Stupeň	Velké dobytčí jednotky na 100 ha zeměd. půdy	Počet stálých pracovníků na 100 ha zeměděl. půdy	Základní prostředky na 1 ha zem. půdy v Kčs	Podíl orné půdy na zeměděl. půdě v %	Přírodní stanoviště
1	do 54,9	do 13,5	do 7999	do 59,1	1
2	55,0-82,6	13,6-20,4	8000-12000	59,2-88,8	2
3	82,7-103,2	20,5-25,5	12001-15000	nad 88,9	3
4	103,4-137,6	25,6-34,0	15001-20000	-	4
55	nad 137,7	nad 34,1	nad 20001	-	5

+/ Pro výpočet velkých dobytčích jednotek byly použity údaje pouze za JZD a státní statky.

Při sestovování grafu jsme postupovali stejně jako prof. J. Kostrowicky. Avšak při vymezování typů jsme použili odlišný způsob. Do typu podprůměrného byly zařazeny všechny případy, jejichž indexy ukazatelů byly podprůměrne ve sloupcích i řadcích a dále i ty, jejichž indexy výrobních pdomínek jsou o něco vyšší než indexy intenzitní. Obdobně bylo postupováno u dalších typů: průměrného, mírně nadprůměrného a nadprůměrneho. Ostatní případy, které nebyly na grafu zahrnuty přímo do jednotlivých typů, jsme považovali za přechodné. Přenesením do mapy jsme získali vymezení čtyř rajonů příslušných typů.

Rajón podprůměrný zaujímá horské a podhorské oblasti Jeseníků a Beskyd a představuje více než polovinu území kraje. Nepříznivé přírodní podmínky ovlivňují nejnižší intenzitu a produktivitu zemědělské výroby v kraji. Většina zemědělských závodů vykazuje podprůměrný stupeň zornění /do 60 %/. Vysoký podíl luk a pastvin umožňuje v této oblasti mírně nadprůměrnou

až nadprůměrnou hustotu skotu na 100 ha zemědělské půdy. Z hlediska zaměření produkce je tento rajón hlavním dodavatelem hovězího masa a mléka.

Rajon průměrný zaujímá Ostravsko, část Opavska, Moravskou bránu a úzkým pásem lemuje oblast Jesenků. Je charakterizován nevýrazným zaměřením výroby, zastoupením mnoha produktů.

Rajón mírně nadprůměrný je plošně nejmenší, zaujímá okrajové části Hornomoravského úvalu a centrální část Opavska. Příznivé přírodní podmínky umožňují značnou intenzitu výroby, zaměřené hlavně na obilí a cukrovku i rozvinutou živočišnou výrobu. Stupeň zornění je již nadprůměrný.

Rajón nadprůměrný se rozkládá v Hornomoravském úvalu. Díky nejpříznivějším přírodním podmínkám je to nejvyspělejší rajón v kraji. Vyznačuje se nejvyššími indexy obou skupin. Je největším dodavatelem tržního obilí a cukrovky v kraji, má i rozvinutou živočišnou výrobu se zaměřením na chov prasat a skotu na mléko.

Na základě klasifikace sociálních výrobních forem zemědělství a rovněž vycházejíce ze skutečnosti, že hranice mezi rajóny do značné míry obrážejí zvláštnosti, závislé na zonálně-klimatických podmínkách a s nimi související specifiku půdního krytu, vymezili jsme na území Severomoravského kraje tři velké zemědělské rajóny:

A - oblast nížinného zemědělství s pěstováním intenzívních a speciálních plodin
B - oblast zemědělství pahorkatin a vrchovin s převahou obilovin
C - oblast horského zemědělství s převahou chovu skotu.

Při zpracování územního členění jsme vycházeli ve většině případů s dvoustupňové hierarchie zemědělských rajónů. V prvním stupni byly vymezeny 3 rajóny, dělené na 10 podrajónů. Některé z nich jsme dále členili na relativně homogenní územní celky.

Rajon A lze charakterizovat jako rajón s velmi dobrými přírodními a výrobními předpoklady, s nadprůměrnou až vysoce nadprůměrnou intenzitou, vysokou tržností produkce /70-85 %/, s přibližně vyrovnaným podílem rostlinné a živočišné výroby, se zaměřením na výrobu vepřového masa nebo mléka a cukrovky; tržní význam má rovněž i hovězí maso a obilí /ječmen a pšenice/. Je to rajón řepařsko-obilnářský s intenzívní živočišnou výrobou, zaměřenou na chov prasat a výdojný chov skotu.

Jako podrajón A_1 byla vyčleněna Tršická oblast se zaměřením na pěstování chmele, jež ovlivňuje celkovou specializaci zemědělských závodů. A_1 lez označit jako řepařsko-obilnářsko-chmelařskou oblast s různorodou živočišnou výrobou.

Podrajón A_2 na severu Opavska označujeme jako obilnářsko-řepařskou oblast s mírnou převahou živočišné výroby, s menší koncentrací tržních odvětví.

V rajónu B jsme vymezili 5 základních podrajónů, lišících se přírodními podmínkami, výrobními předpoklady, produktivitou i zaměřením výroby. Mají však řadu společných znaků; především výrazný podíl obilovin na hrubé produkci /20-25 %/. Zaměření na méně intenzívní plodiny ovlivnily slabé vybavení pracovními silami.

B_1 - obilnářsky smíšený podrajón s živočišnou výrobou, s průměrnou až mírně nadprůměrnou intenzitou, se zaměřením na výdojný chov skotu, prasat a na produkci obilovin. Vymezení podrajónu B_2 je ovlivněno blízkostí velkých průmyslových

a spotřebních středisek - Ostravy a Karviné. Stěží však lze mluvit /v období 1963-65/o příměstské specializaci. B_3 - obilnářsko-lnářský podrajón s chovem skotu na mléko a maso lze hodnotit jako oblast maloproduktivního zemědělství s podprůměrnou intenzitou živočišné výroby a relativně extenzívním obilnářstvím /hlavně žito/, se zaměřením na tržní produkci mléka, obilí a hovězího masa, v menší míře lnu a vepřového masa. B_4 - obilnářsko-bramborářský podrajón s průměrnou intenzitou zemědělské produkce vyznačuje se nevýrazným zaměřením výroby, malou koncentrací tržních odvětví: produkce vepřového masa, mléka, hovězího masa, obilí, brambor i drůbežího masa. B_5 - obilnářsko-dobytkařský podrajón tvoří přechod mezi obilnářskou a horskou oblastí. Je to území s podrpůměrně až průměrně intenzívním zemědělstvím, s mírnou převahou živočišne výroby.

Rajón C. Nejnižší zemědělskou produkci na 1 ha zemědělskou produkci na 1 ha zemědělské půdy ze všech rajónů / 2 až 3 krát nižší než v rajónu A /, podprůměrnou nebo průměrnou v porovnání s celostátními ukazateli, lze vysvětlit především jednostranným zaměřením na živočišné výrobě; tržní rostlinná produkce je vlivem přírodních podmínek nerentabilní.

Na území tohoto horského typu jsme vymezili dva podrajóny. C_1 lze charakterizovat jako území s podprůměrnou až průměrnou intenzitou zemědělské výroby, s velmi nízkou tržností, s naprostou převahou živočišné výroby, se zaměřením na chov skotu na mléko a maso /východní část/ nebo maso a mléko /západní část/.

C_2 - podrajón horského extenzívního hospodářství lze označit jako území s nepříznivými přírodními podmínkami, výrazně ovlivňujícími nejzižší intenzitu a produktivitu zemědělské výroby v kraji. Podrajón se zaměřuje na chov skotu na mléko a maso, zčásti i na pěstování obilovin.

Vymezené rajóny zpřesňují výsledky bádání československých geografů a ekonomů v předcházejících obdobích. Lze konstatovat, že jejich závěry v zásadě nevyvracejí. Potvrzují obecně známou skutečnost, že rozmístění zemědělské výroby ve značné míře ovlivňují přírodní, podmínky, podléhající v historicky krátké době jen nepatrným změnám.

Změnami a modifikacemi charakteru i rozšíření typů zemědělských rajónů se budeme zabývat v rámci výzkumného úkolu "Regionální klasifikace zdrojů v zemědělství ČSR", na němž začíná oddělení v současne době pracovat. Porovnání dvou období /1963-65 a 1969-1971/ umožní pochopit rozvojové tendence a kvantitativní aspekty zemědělské výroby, umožní dospět k závěrům o další, racionální modifikaci územní struktury zemědělství v Severomoravském kraji.

GREEN VILLAGE - STREET VILLAGES - OXGANG

THE LINEAR SETTLEMENT AS ONE FORM OF INLAND COLONIZATION

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THORPEs paper has made the Durham-green villages so well known that often the green village is thought of as a settlement form peculiar to that county. This however is easily disproved by STAMPs map[1/] which also refutes any explanation of the green that relies on local or regional factors, be they ethnic or historic.

Fresh field observation produced a fundamentally different lead: A great number of green villages in Co.Durham feature a "social asymmetry" which shows up in their groundplan /plot size/ as well as in their building substance. One side of the green is lindd with farmsteads belonging to small or medium-sized farms. More open in appearance, it contrasts markedly with the compact row of cottages on the poopsite side. Now, the farmsteads can not be later than enclosure time which, in Co.Durham, means the period from late 15th to late 17th centuries. Rather, the lay-out of two villages suggested that today's social asymmetry was conditioned by a pattern definitely predating enclosure. At the back of their cottage rows are narrow strip plots used as garden or field, and these plots abut in one straight line upon Middridge's former common and the Cockfield common still functioning as such.

1/ STAMP, L.D.: The Common Lands and Village Greens of England and Wales. Fig. 4.: The Distribution of Village Greens,1961 in: Geog. Jn. Vol. 130,4, 1964

Thus, field observation pointed to a pattern of farms aligned on one side of the green; the green itself is, of course, commonage and appeared in two instances divided off the main common by just a row of cottages. On turning to the records, not only were these findings fully borne out but were, moreover, given a systematic meaning. I shall here summarize but the Grindon evidence as it is the main aim of this paper to review the Durham results in their wider context of Germanic Europe.

Co. Durham belongs to the early-enclosed parts of England where no other mode but enclosure-by-agreement could be used. Both this mode and the frequent presence of freeholders were strongly conducive to preserving as many elements of the previous pattern as were compatible with the aims of enclosure. Though enclosure maps are lacking, the point is easily proved by comparing pre-enclosure property lists with enclosure awards. And it is supported by BERESFORDs short list of only seven lost villages in Co. Durham, including Grindon. As it turned out, Grindon was really a case of resettlement.

In 1957, at the time of enclosure, Grindon consisted of three farms and twelve cottages, the church and the vicarage. The oldest parts of the church had rubble masonry of probably pre-Norman date, and the very small size of the manor also pointed to survival from the pre-Norman order. - In conjunction with the manor's size the location of the old village made resettlement of the cottagers inavoidable. For if enclosure was to create three consolidated holdings, the former common and the arable had to be lumped together. But the old village was located exactly between the two areas, on the edge of its arable and fronting onto the common /Fig. 1/.

Grindon represented a type location.

The pre-enclosure village plan combined alignment - of three farms strung out along a road plus the church at one end - with a church green. With but three farms and these, moreover, aligned, Grindon's size remained rather worrying. As there is no Domesday Survey for Co. Durham against which to check, further settlements had to be analysed until it could no longer be doubted that

Grindon had a type size.

The Durham-Urdorf, then, was a row of three farms, frequently plus either church or noble seat. Considering the overall circumstances, this accords well with the Domesday evidence for Yorkshire, a county much better endowd than Durham. Even so, in 1086, Yorkshire too was noted for its many but, compared to SE-England, small villages. With six farms Wheldrake had the typical size - and also form. Eleventh century Wheldrake was a string of six farms /Fig. 2/ - another linear settlement. But Wheldrake was soon to grow into a street village, not a green village.

Point 1: <u>The green village is NOT a primary form of rural settlement. Neither in England , NW-Germany and S-Sweden nor in East Elbian Germany.</u>

With regard to the latter, a cautionary note is due as there is now no chance for re-analysing the documentary evidence. One can but look afresh at what has been published, for instance by KRENZLIN /1952/[1].

1/ Unfortunately, most of the historic plans are reproduced rather badly. There are, however, clear cases of social asymmetry, of linear settlements fronting onto remnants of commonage, sometimes with small plots intervening between these and the green.

Point 2: Both street village and green village originated from the same root, their common primary form being a string of farmsteads = HOFREIHE.

The decisive factors that directed later growth into either a street village or a green village were both physical and legal.

When a clearing is made in woodland, crops have to be protected against wild animals as well as the colonists' cattle on the woodpasture. A tun/Zaun being necessary, there was but the choice between fencing the arable or fencing the commons: in either case the tunhad a bearing on the future shape of the dwelling place.

Where the commons was fenced and the Hofreihe had a borderline location like Grindon or Byers /Fig. 3/, a strip of open commonage had to be left in front of the farmsteads to give access. The green = Anger was a functional necessity and NOT a primary planning feature like a town square. Physically part and parcel of the waste but left outside the commonage fence, the green retained the legal quality of a commons and still does so unless enclosure has interfered. In consequence, for as long as oxgang/hube or toft carried special legal qualities incompatible with those of a commons, a farmstead could not be placed on the green. New farmsteads either condensed an existing Hofreihe or elongated it. Because of lesser status cottages posed no problem on the green and they would least interfere when put up along the fence.

Byers Green was unfortunate in fronting onto a common shared by several townships and not carved up until 1806. Most places gained a village common in high or late medieval times and could then more freely decide on the best use of it. If they converted the "foreland" into permanent arable, the borderlinelocated Hofreihe attained a central position in the arable.
Yet, like Dunum in Ostfriesland /Fig. 4./, it could still remain a Hofreihe-cum-green. Toagarp in Scania /Fig. 5/ grew into a green village lateron and others may have seen planned growth simultaneous with the expansion of their arable, so possibly Ardorf/Ostfriesland /Fig. 6/ or Mallnow in Eastern Brandenburg /Fig. 7/. While in these cases the commons fence remained a boundary line, it was also possible for the commons fence to be overcome both physically and legally. Wheldrake from a Hofreihe developed into a double line street village.

Point 3: <u>The problem of alignment.</u> That three farmsteads or even six should stand in a more or less orderly row, looks rather strange at first. It becomes fully plausible, however, when the legal and technical aspects of woodland colonization are taken into account. The first act on creating a new settlement was the drawing of a base line along which to apportion the land. For it was the width rather than the area of land that was measured. From the base line clearance would then proceed in one direction and the first shelters be located somewhere near that line. Only the oxgang/hube /which in some regions also covered the toft/ was the colonist's private property while "wastes and commonties were no part of the oxgang". His farmstead, therefore, had to be on the ox-

gang-land, or, at least, join onto it but then as a special enclosure.

Point 4: The Hofreihe was a timeless from. Byers in the 12th century was founded to the same principles as the village X of the Vita /c.721/ where it describes St. Cuthbert's /c.634-687/ journeys in Northumbria. The one difference to be expected concerns the lay-out and size of their arable bearing in mind the transition from the hube of early to the Hufe of high medieval times.

As the Hofreihe from the context of the Vita appears as a then normal feature, it can, no doubt, be back-dated to the 6th century, that is the beginning of systematic colonization in the North. For Southern England, colonized somewhat earlier, a fifth century date should not be ruled out. Not much later dates one would expect from Northern France. - In S-Sweden, ANDERSSON /1959/ refers the Undorf to Bolskifte times, i.e. the latter part of the Migration Period and early Viking Age.

Remains Germany. Settlement analysis has, so far, concentrated mainly on the northern and central regions and patterns correspond well. But neither Dunum, Ardorf, nor, in fact, any settlement of whatever shape can be pushed beyond the 9 th century deadline. Exceptions like the Ostgeist-Reihe /Fig. 8/ only prove the rule[1]. Close analysis revealed

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1/ In N-Germany the dating deadline is most probably due to late Franconization and territorial organization /Grundherrschaft/. Only the falian lowland saw earlier infiltration of Franconian influences; the Ostgeist is now included in Münster. - Besides this real cause, a research gap may also contribute to our dating problem. The hube and the organization of Grossmarken/intercommons have, so far, received too little attention. Comparison of, for instenace, the Ardorf, Mauers and Reichenbuch plans suggests these to be promising lines for future research.

that the ostgeist-Reihe in the 8th century consisted of three farms + a Schulzen seat.

Point 5: The Urdorf, established for Scania by ANDERSSON, was a feature common to all Germanic Europe and, perhaps, beyond

Besides the single farmstead, two group lay-outs only can be accepted as primary forms of rural settlement in Germanic Europe: hamlet/Weiler and Hofreihe. All others must be considered secondary, if not tertiary derived forms.

It was a small-scale beginning. Whether Mauers in E-Hessia, Reichenbuch in Württemberg or Betchworth in Surrey to name some hamlets, whether a curved Hofreihe like Dalitz /Hannover-Wendland/ or the straight Hofreihen Dunum, Ardorf, Ostgeist, Mecklenbeck, Tägarp, Virrestad, Grindon, Byers etc. - they all commenced with three farmsteads, often pluss either church or noble's seat.

Grouped or aligned, the small-scale beginning was suited to all possible natural conditions. Also, at a time of low population pressure, it ensured a first hold on relative large areas to be strengthened lateron by successive waves of daughter settlements. Subsequent growth of each village embryo was possible too but limited by physical and legal restraints.

A late foundation like Byers could but need not start at Urdorf-size. Where sufficient arable land and settlers were available, it might commence as a Hofreihe of si or more farms. In any case, the original location of the Hofreihe in relation to arable, commons, water and meadow or in relation to a legal boundary and fence proved the decisive factor in the subsequent evolution of the several Hofreihe-derived settlement forms.

Point 6: The Hofreihe was the tool of a systematic /woodland-/colonization.

Neither the Anglo-Saxon nor the Franconian or later the German colonizations were haphazard affairs. Initiated by kings, Slavic dukes, the established rulers in general, and with a political aim in mind, colonization was a planned process and clearly followed a set plattern. It was organized in several tiers, the settlers being led by a locator, often a junior member of the respective 'noble' class. Therefore the seat of a noble, a Schulze as frequent element, a type feature of the Hofreihe.

Point 7: The problem of the territorial framework.

If the colonization was not haphazard, woodland clearance must have proceeded within recognised bounds. Secondly, if wastes and commonties were not part of the oxgang, of what were they a part? Thirdly, as the Urdorf was far too small to function as an entirely independent community, there must have been a binding force, some form of organization.

For one, the Urkirchspiel/primary parish has long been recognised as a frame for inland colonization. It acted as such also in England. But the parish organization is comparatively late, coming into existence only after the change-over to Roman Christianity and rather slowly in England.

Preceding the parish organization, there were the Franconian Royal Forests and villicationes[1/], the pagus and other

1/ The importance of these units as organizational frames of the Franconian "state colonization" has been clearly established by NITZ in his Odenwald study /1962/.

territorial units which they were able to delineate clearly or roughly and which, in turn, must have stood in succession to an earlier organization. But, much as we know about their dissolution, practically nothing is known about the territorial origin of, for instance, the villicationes.

In England, apart from continuity lines since Roman times /e.g. FINBERG 1964/, there are instances, as Glanville JONES has never tired pointing-out, of Anglo-Saxons taking over without interlude a British lordship. But not sufficient evidence is forthcoming on the further point of now the Anglo-Saxons /re-/organized what they had inherited.

That such a territorial frame and organization existed one is constantly made aware of - but so elusively that it is impossible as yet to put a name to it. Intil then it seems best to identify it with the intercommon/Grossmark /Zentrallallmende/ which, in the present context, is also the most important feature.

While strategic aims could demand securing first the control lines by settlements along rivers, esp. at the fords, along Roman roads continuing in use and similar military roads /via regia/, the economic emphasis of colonization was on lowland in general, warme soils and valleys in particular. Basically, these were the old core areas, more or less long settled in varying density, and which were now expanded. Once these were firmly in hand, the concept apparently aimed at control of a fairly extensive woodland from an adjoining core district, usually the one with a river/rivolet as a natural route of ingress.

Going out from the core district, the exact principles followed in demarkating a particular woodland section remain, as yet, unknown. One topographic characteristic, however, turns up repeatedly and may establish part of the pattern: the section stretched up to the top a hill and further to the knick of the opposite flank. After sucessive waves of filiation, all sharing the intercommon, ha eaten into the woodland, there would, in consequence, come a final leap across the intercommon and occupation of that knick. Byers several other places in county Durham have this location and so have three of the four villages founded in the 8 th century by Franconian nobles from the Grabfeldgau with a leap over the central Rhön.

By the time of this final leap, the eldest villages, feeling too far removed from the intercommon also the passage of their herds to and fro' causing frictions with the daughter settlements, had already started to press for a commons of their own. Creation of village commons began in the core areas as early as Carolingian times but elsewhere the process lasted well into the 13th century or longer. The Asbrook /Fig. 9/, for instance, was not partitioned among its then twelve member-villages until 1257. Typical of the last stage of an intercommon, only the villages immediately surrounding the Asbrook were still sharing it while older members further out had already become independent.

Point 8: <u>The Hofreihe had a political implication. Its origin and spread were bound up with that of territorial lordship/Grundherrschaft, the fundament of early medieval statehood.</u>

Franconial "state colonization" which had such an impact on Germany was no singularity. The Anglo-Saxons too pursued a

"state colonization" and England even preserves a legal record in the laws of Ines /c.690/, king of Wessex.

On the orevious type of personal relations being supplanted by a real relation /legal sense/ vested in a particular piece of ground, social stratification based on landed property could perhaps develop quasi in situ. In most regions, though, it further took an immigrant superstructure /Herrschaftsbildung durch Überschichtung/ for territorial lordship to fully establish itself. Precisely because of that the Saxons, Eastfalians more so than Westfalians, fought the new order for so long.

Circumstances demanded of the Franconians to rely more heavily on time in the course of which the lesser /in the eyes of e.g. the Saxons/ right implanted with the new settlements would assimilate the older. The Anglo-Saxon colonization was far more thorough and resulted in a clean division. The uplands of Wales and Scotland were left to the older type of personal relations lordship which Ireland too retained while all other Britain was resettled and colonized and subjected to territorial lordship.

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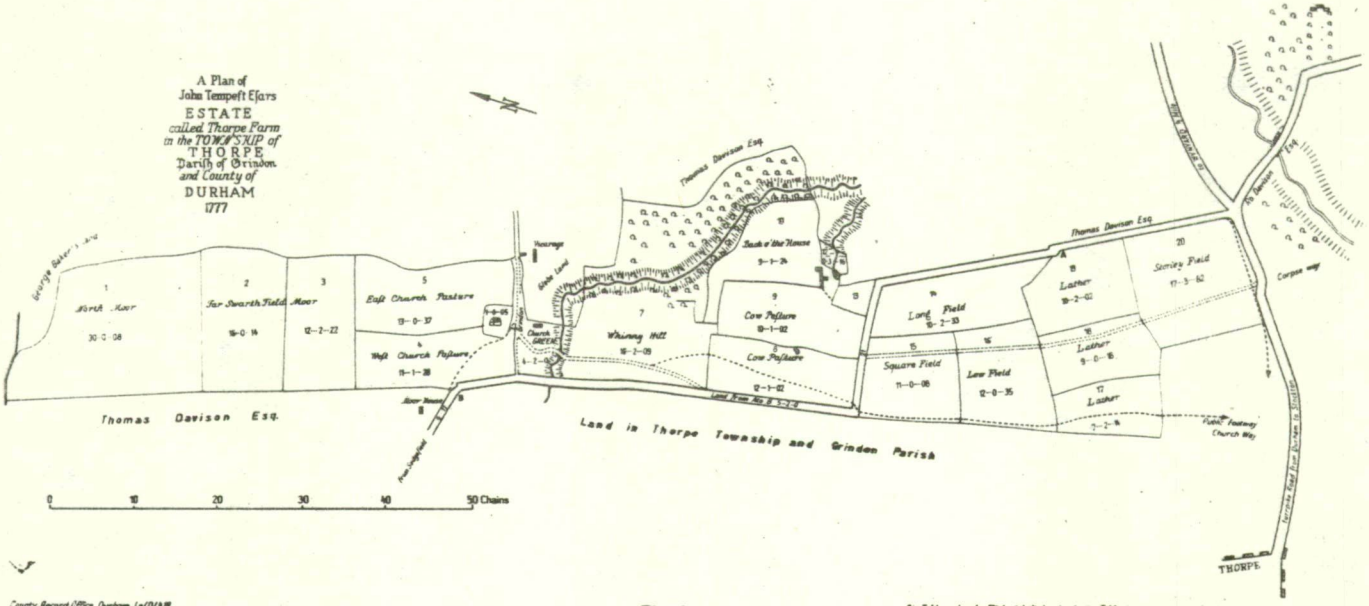


County Record Office, Durham, Le/Di/418

Fig. 1

Die Zahlen geben den Flächeninhalt der eingefügten Felder in acres, rods, perches an.

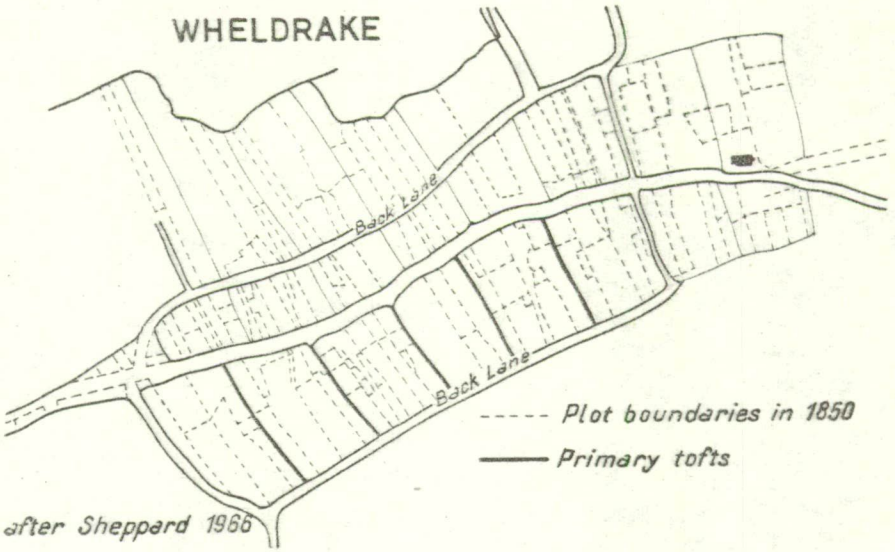

WHELDRAKE
Back Lane
Back Lane
Plot boundaries in 1850
Primary tofts
after Sheppard 1966

Fig. 2.

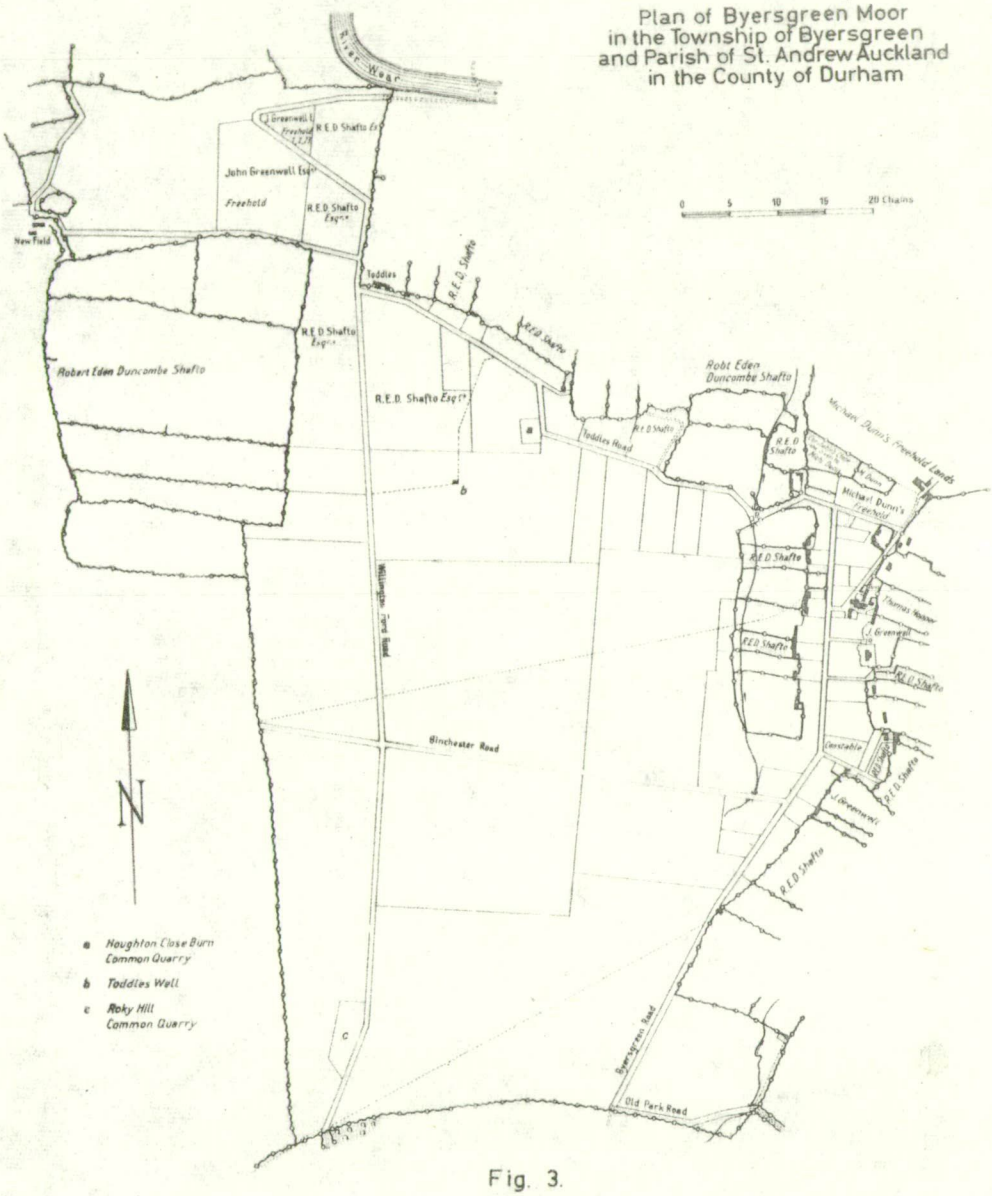

Plan of Byersgreen Moor
in the Township of Byersgreen
and Parish of St. Andrew Auckland
in the County of Durham
River Wear
John Greenwell Esqr
Freehold
R.E.D. Shafto Esqre
New Field
Toddles
Robert Eden Duncombe Shafto
R.E.D. Shafto Esqr
Toddles Road
Robt Eden Duncombe Shafto
Michael Dunn's Freehold Lands
Willington Town Head
Binchester Road
Byerley-ton Road
Old Park Road
0 5 10 15 20 Chains
N
a Houghton Close Burn Common Quarry
b Toddles Well
c Roky Hill Common Quarry

Fig. 3.

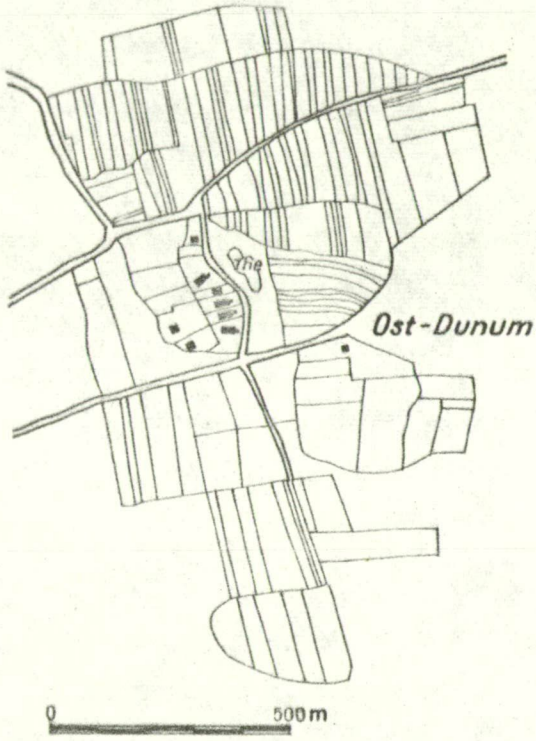
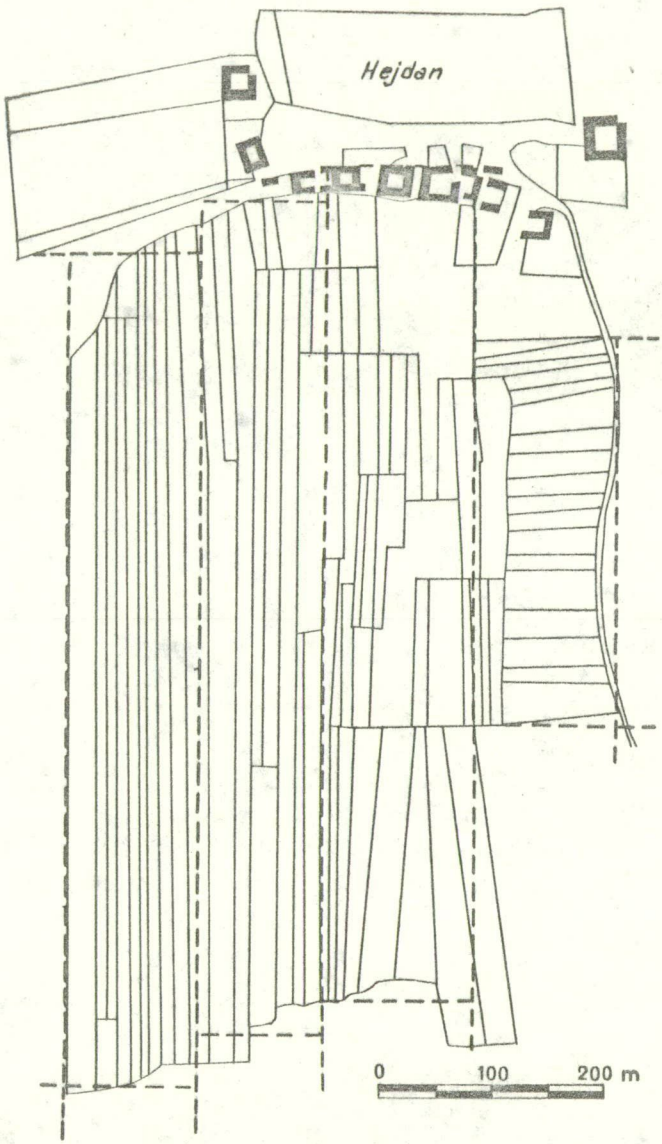


Fig. 4.

GLEMMINGE - TÅGARP



after Andersson 1959

Fig. 5.

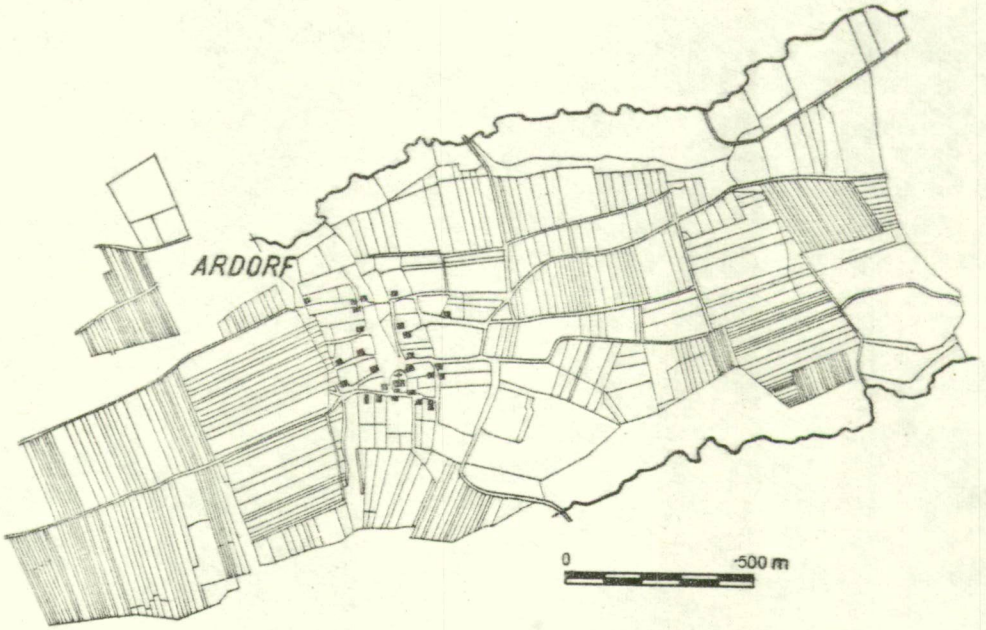
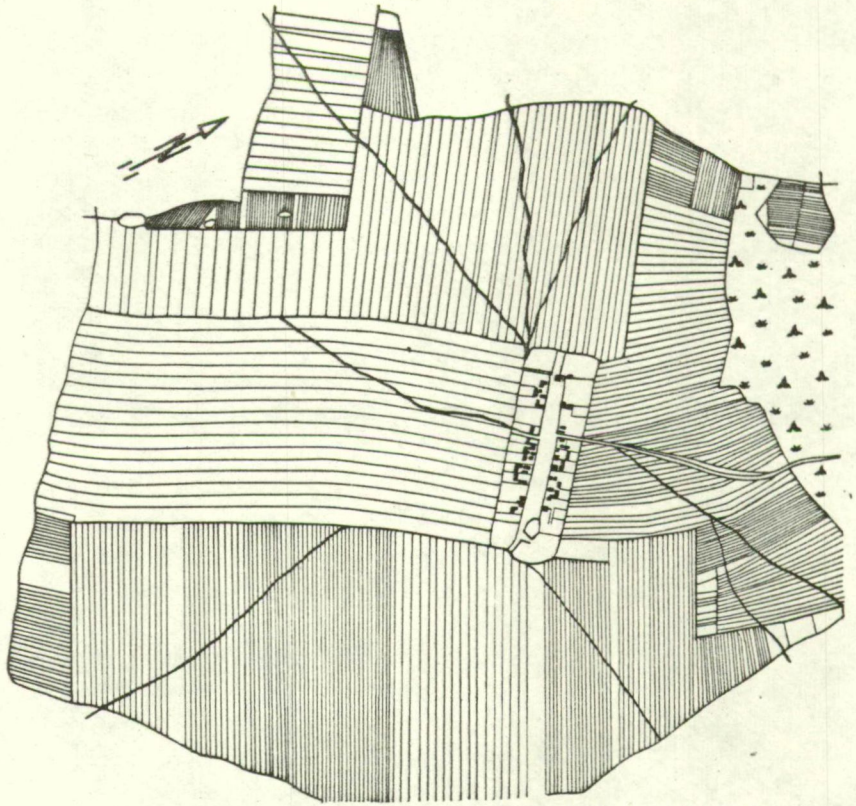


Fig. 6.

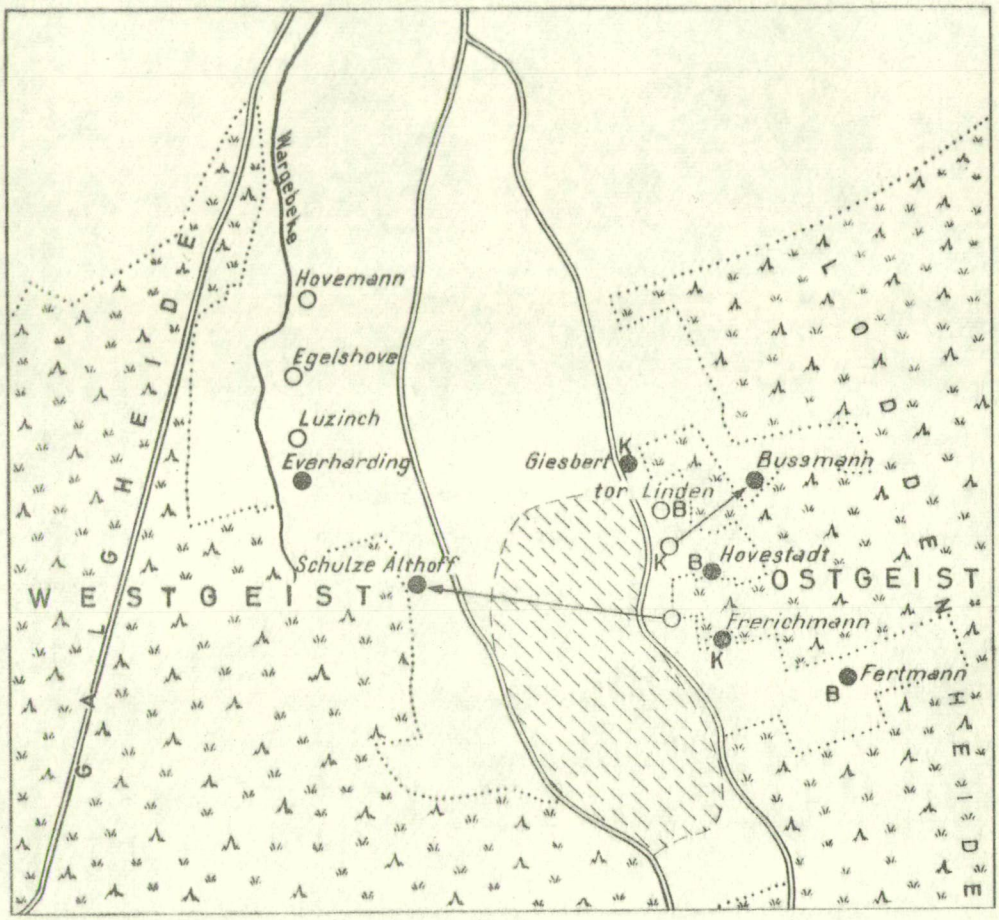


MALLNOW, EASTERN BRANDENBURG, IN 1727

after Krenzlin 1952

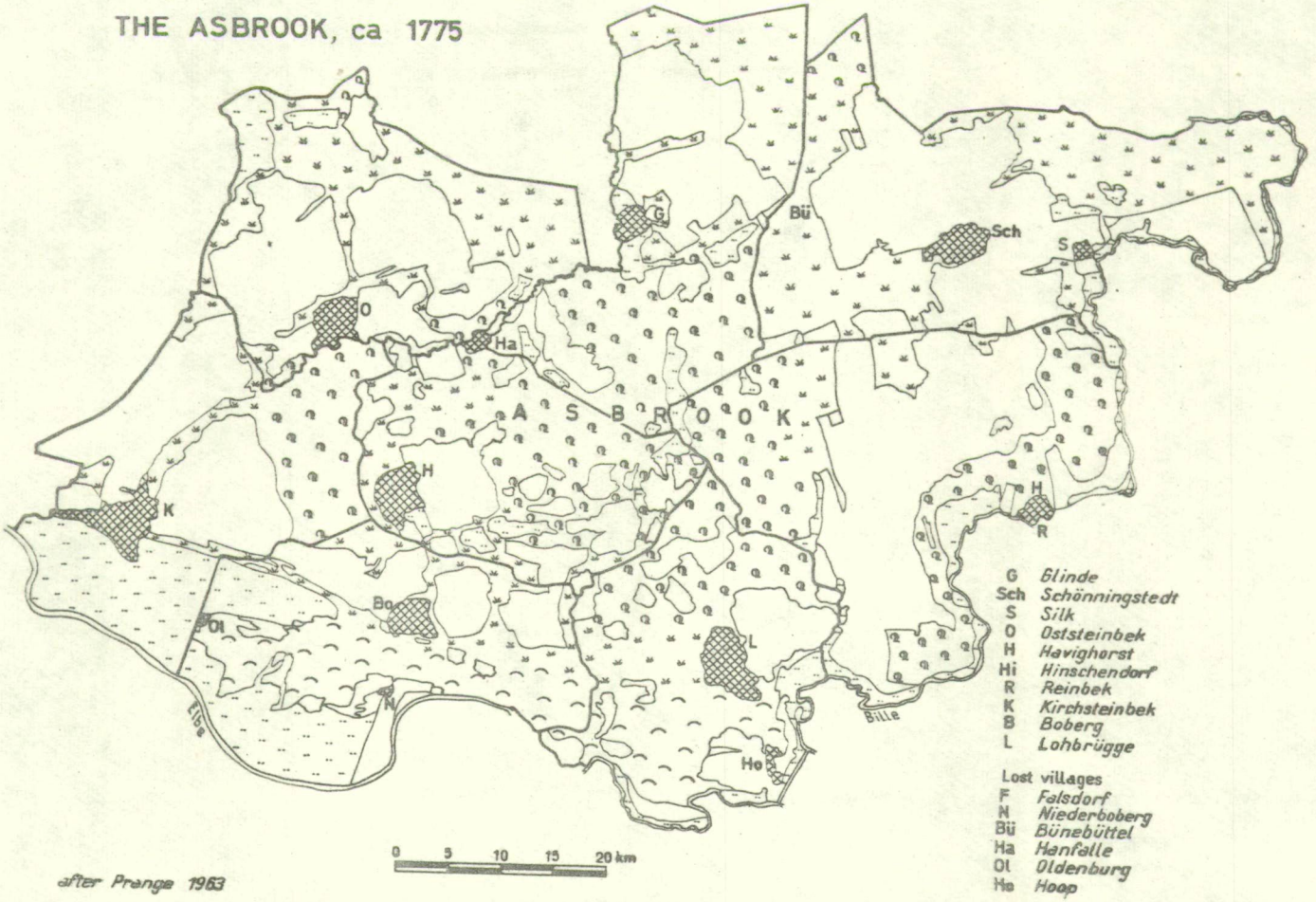
Fig. 7

THE OSTGEIST-HOFREIHE IN EARLY MEDIEVAL TIMES



after Prinz 1960

Fig. 8.


THE ASBROOK, ca 1775
A S B R O O K
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L
Ho
Hi
R
Bille
Elbe
0 5 10 15 20 km
after Prange 1963
G Glinde
Sch Schönningstedt
S Silk
O Oststeinbek
H Havighorst
Hi Hinschendorf
R Reinbek
K Kirchsteinbek
B Boberg
L Lohbrügge
Lost villages
F Falsdorf
N Niederboberg
Bü Bünebüttel
Ha Hanfalle
Ol Oldenburg
Ho Hoop

Fig. 9.

THE TYPES OF THE CHANGES IN THE LAND USE IN THE S.R. SLOVENIA

J. M e d v e d

Ljubljana University
/Yugoslavia/

Introduction

The intensive socio-economic development and particularly the expanding use of technology in every sphere of our economy make for an extremely rapid decay of the old agrarian structure of the Slovene countryside regions as well as for changes in the orientation and forms of the agrarian production. The directions and the intensiveness of these processes differ from one area to another a great deal; these are processes depending on a series of various factors as they come up in various social and economic environments. The fundamental force in the destruction of the old agrarian ways of production is the constrantly changing value of man's work. This economic principle starts in various environments various changes, and these are most clearly mirrored in the changing of the land use. Since the process of the changing of the land categories represents a result of highly different lines of force, it may be under indentical natural circumstances but different socio-economic environments very different because different social groups may value an identical natural potential in entirely different

ways. For this reason it is imperative to examine in addition to the general features of the changes of the land categories, which are largely a reflection of the general external influences, also the positive and negative deviations determined particularly ba the local-economic conditions.

General characteristics of the development of land categories. General characteristics of the development of land categories may be established if their status at two or more different periods are compared. This establishing, however, is made difficult by the imprecise data and different criteria in the keeping of records.[1/] In spite of these shortcomings we may establish for the period 1954-1967 the following tendencies in the changing of the land categories. The tendencies in the changes of the land use as shown by the above data are real. But the intensiveness of the changing is considerably beyond what is shown by the data. The institutions for the land survey for a variety of reasons cannot follow all current changes. One such reason lies in the fact that farmers do not register the changes unless they should have from that a direct profit - each change in the land category in the land register involving considerable expenses. As regards surfaces owned by the socialist sector the institutions for land survey continue to have in their registers the categories from the time of the agrarian reform, nationalizations or other ways of creating this sector - although the actual land use has since that time changed substantially.

The methodology of establishing the types of the changes in the land use. The agrarian surfaces of the S.R. of Slovenia are extremely different both in the prevailing natural and in the social features. Hence it is necessary that the tendencies of the changes in the land use should be established accordingto

1/ Slovenia has in various years a changing total surfaces because of the changes of the state border. Until the year 1955 highland meadows were treated as a distinct category, since then under meadows in general. The orchard surfaces have increased, partly because of actually new pllantations but partly also because of the changed criteria in keeping records.

the land-register units. The study of the data for the 1954-1967 period is based on the following classification:

I. A f f o r e s t a t i o n. This group includes all those land-register units in which the agrarian sufaces are beging turned predominantly into forest surfaces. As regards the intensiveness we distinguish:

1/ Intensive afforestation /Aff. 1/, where more than 75 per cent of all changes in the land categories makes for the increase of forests.

2/ Afforestation /Aff. 2/, where more than 50 per cent of all changes in the land categories makes for the increase of forests.

3/ Slight predominance of afforestation over the other derections of the changes in the use /Aff. 3/.

II. Growing new g r e e n s u r f a c e s. This group includes all those land-register units where units the where agricultural areas are being changed above all into surfaces for breeding livestock. According to the intensiveness of the processes we distinguish:

1/ Intensive growing of new green surfaces /Gr. 1/, where more than 75 per cent of all land category changes makes for the increase of grass surfaces /meadows, pastures/.

2/ Growing of new green surfaces /Gr. 2/, where more than 50 per cent of all land category changes makes for the increase of grass surfaces.

3/ Slight predominance of the growing of new green surfaces over the other directions in the changes of the land use /Gr. 3/.

III. U r b a n i z a t i o n. This group includes all those land-register units in which most of the changes in the land use favour the increase of the buit-up areas or areas for the needs of the urbanization. According to the intensiveness of the process we distinguish:

1/ Intensive urbanization /U. 1/, where more than 75 per cent of the changes favour the increase of urbanized surfaces.

2/ Urbanization /U. 2/, with more than 50 per cent of the changes in favour of urbanized surfaces.

3/ Slight predominance of urbanization over the other direction in the changes of land use /U. 3/.

IV. I n t e n s i f i c a t i o n of land use. This group comprises all those land-register units in which most of the changes make for the increase of fields, gardens, and vineyards - in a word, for intensively tilled surfaces.

1/ Strong intensification /Int. 1/, where more than 75 per cent of the land use changes increase the intensively tilled surfaces.

2/ Intensification /Int. 2/, where more than 50 per cent of all such changes makes for the increase of such surfaces.

3/ Slight predominance of intensification over the other directions in the changes of land use /Int. 3/.

T h e a f f o r e s t a t i o n is characteristic of the predominant part of our mountainous world and occupies a total of ca. one third of the Slovene territory. Most intensively this process is in progress at the upper frontier of pupulation, where the type Aff. 1. predominates. This type is in marked predominance in the northern and western parts of Slovenia, whereas in the other arieas it comes up only in smaller yet continuous stretches. The most extensive stretch of the intensive afforestation extends from Maribor in the east to Kamniska Bistrica in the west. In the northern and north-western slopes of Pohorje it reaches considerably lower than in the southern and south-eastern slopes. In the area of Karavanke it comes up in isolated parts in Jezersko, at Sveta Ana, Begunje, and Doslovce. In the western Slovenia it again becomes prominent, except for smaller exceptions in the valleys Soska dolina and Vipavska dolina, and in the western-most part of Groriska brda and in the area of three coastal communes. In Dolenjsko the afforestation is strong particularly in Suha krajina, Bela Krajina /Poljanska gora, and along the Kolpa at Preloka, Domelj, etc./, and on Gorjanci. Larger countinuous areas of afforestation are also between Sneznik and Loski potok, particularly on Babna polica and in Babno polje. In Posavsko hribovje, Haloze, and Goricko it comes up only in isolated regions. The second and the third type of afforestation /Aff. 2, and Aff. 3/ on the whole stand out in the same areas but in slightly lower regions and along the more favourable traffic routes, and they reach also into the sub-Pannonian territory.

Growing new g r e e n s u r f a c e s is the most important direction in the changes of land use in Slovenia. Intensive growing of new green surfaces /Gr. 1/ is in marked predominance in Prekmurje, Slovenske gorice, Haloze, Kozjansko, and in Bizeljsko all the way to Bela Krajina. In the remaining, parts of Slovenia it is on the increase above all in those regions of the mountainous world where the natural potential for the agrarian land use is slightly more favourable and in the bottom of valleys and basins. The internal differentiation into individual types strongly depends on the value the natural conditions have for agriculture, on the size of the landholdings, on the proximity of nonagrarian centres, and on the nature of the traffic connections. The first type is in the interior on the increase above all in higher regions, while the second and the third types /Gr. 2, and Gr. 3/ mostly in the lower regions, in the areas of the daily commuting manpower.

U r b a n i z a t i o n influenced the changes in the land use especially in the surroundings of the major non-agrarian centres and along the favourable traffic routes. Outstanding in this respect is the central axis Maribor-Celje-Ljubljana-Vrhnika. Slightly less strong in this respect are the axes in Gorenjska, Dolenjska, in the Soca valley, in the Drava and Mezica area, and in Notranjska. Beside these areas the influence of urbanization on the land category changes is strong also in the mountainous areas. Thus in the north-eastern part on Pohorje /Planina and Smrecno/, where a great deal of tourist facilites has been made. And in the Alpine Slovenia at Sveta Katarina, on zupanje njive, at Kranjska gora and Gozd. The most outstanding example in the Julian Alps is Studor.

I n t e n s i f i c a t i o n, that is the spreading of field, vineyard, and garden surfaces, is in Slovenia a mere exceptional phenomenon. Is asserts itself only in individual areas where the social landholdings have acquired through big investements a certain amount of new field surfaces. This is the case in the communes Ljubljana-Bezigrad, Ljubljana-Polje, Ljutomer, Lendava, Slovenska Bistrica, Ilirska Bistrica, and Zalec.

A survey of the general directions of the changes in the land use may give us a spatial distribution of these processes but it tells us little whether the fundamental moving force of this processes resides in the revaluation of the natural conditions for the agrarian land use or in the inadequate land ownership structure or in other socio-economic factors. This question does not permit an overall answer that would be applicable to a wider area, let alone to the whole of Slovenia. The extremely big differences in the value of the natural potential for the agrarian land use, in the social ownership structure, and in the degree of the development of the non-agrarian economy are the cause that the relations between these factors from one region to another differ a great deal.

If we take a look at the main factors that have been and will continue to be influential on the changing of the land use, we might group them as follows:

1/ Inadequate natural conditions /e.g. steep slopes, poor soil, unfavourable climatic conditions, etc./;

2/ Structural inadequacies /land ownership structure, small lots, small and solitary landholdings, etc./;

3/ Socio-economic circumstances /possibility of becoming employed in other economic branches bringing better wages, uncertainty as to the purchasing prices, changes in the prices of articles needed by agriculture, etc./.

Answers to the questions posed above can be given only when a detailed examination has brought us to an understanding of the above factors. The structural and the socio-economic influences are not something permanent or unchangeable; they may be at least in part abolished or improved. The natural factors have permanent or at least very long duration and are difficult to be changed. For these reasons the advantages or disadvantages of favouring particular directions in the land use have to be assessed on the basis of the contemporary value of the natural potential in our agrarian context. In this we must also take into consideration the starting degree of development. Our agrarian land and our landownership structure are based on criteria for the evaluation of the natural conditions for the agrarian land use as they were valid in the pre-industrial period. The structure is adapted ot the then current directions of land use in a given environment, to the then current development of agrarian technology /the hoe and the primitive plough/, and to the then current value of man's work. And therefore we get between the real value of the natural conditions for modern land use and the present-day orientation and size of land-holdings great dissonance which starts tendencies towards destructing the existing circumstances. These tendencies are the stronger and the process of changing the directions of the land use is the more intensive if the dissonance in a particular environment is the stronger. In Slovenia this is very strong, parti-

cularly in the north-eastern, eastern, south-eastern, and karstic parts. The average peasant holding in Slovenia had in the year 1960 4.02 hectares of agrarian land, with 1.2 hectare of field thereof. At the same time the average farmer's holding in Great Britain had 29.3 hectares, in France 15 hectares, and in the Austrian Carinthia 27.3 hectares. The small average size of the peasant's holding in Slovenia does not permit a productive utilization of the family's manpower, and this fact makes structural changes imperative.

Because our socio-economic development has lagged behind the development in the industrially developed countries, such an agrarian structure could persist until the recent years. In the recent period which covers the time since the introduction of the economic reform all the spheres of economy increasingly introduce a modern way of production, and that goes also for farming - particularly in the socialist sector. The results are to be seen in the increase of productivity and in the bigger yields. Through the economic reform we are increasingly becoming included in the international division of labour, we are abolishing the administratively fixed prices and passing over to the market value of the products. All this entails that a rise of the standard of living - of an individual or of the community - must be based solely on higher productivity. And this can be done by a farm labourer only through the introduction of mechanization and other agro-technical devices, or through an extreme extensification of the land use. The two directions, however, set up new criteria as to the value of the natural conditions and to the size of landholdings. The application of modern agrarian mechanization is not possible or is economically ill-founded on steep fields in the mountains or in small rocky field in the karstic area.

The modern evaluation of the natural potential for the agrarian land use does not come in all parts of Slovenia to equal prominence, not even in the same natural environment. On the one hand it depends on the general degree of the local socio-economic development /proximity of industry and possibility of becoming employed in other non-agrarian activities, the development of communications and in this way the possibility of travelling to work/, and on the other on the size of landholdings. In the mountainous world where we get comparatively bigger land-holdings, it is possible even if younger people move away to rely on forestry and livestock breeding. With the introduction of modern mechanization into the forest and grassland economy the peasants may raise the productivity and thus ensure for themselves a decent standard of living. Therefore the afforestation of these areas is conditioned not only by the nature but also by the structure. Fairly different directions of land use are coming up in the identical conditions on land owned by the former "middle" peasant. The small landholding does not permit a transition to the forest economy or to the intensive grassland economy, and therefore the changes are determined largely by the structure of the family. If the people working on such a landholding are old to a degree that they cannot change the occupation or look for work abrpad, then they persist in the old system of landtilling, and any growing of forest or green surfaces is more a reflection of the shortage of labour than of a conscious rationalization. This is especially true of the areas of small landholdings in the entire eastern part of Slovenia. Here the areas where new green surfaces are grown largely correspond with the areas of depopulation, areas with predominatly older inhabitants, and areas of emigration.

Changes in the size of land categories in Slovenia over 1954 - 1967

Category	1954	1967
total surface in hectares	1.964.834,77	2.025.284,69
increase of total surfaces in hectares		60.449,92
increase of total surface in%		3,1
total surface in %	100,0	100,0
productive land in hectares	1.857.232,27	1.907.904,63
in %	94,5	94,2
forests in hectares	836.527,23	907.443,60
in %	42,5	44,8
agrarian land in hectares	1.020.705,04	1.000.459,99
in %	52,0	49,4
tillable land in hectares	723.428,41	729.552,81
in %	36,8	36,0
fields and gardens in hectares	346.532,50	297.867,88
in %	17,7	14,7
orchards in hectares	13.761,09	38.961,59
in %	0,7	1,9
vineyards in hectares	30.114,46	22.515,15
in %	1,6	1,1
meadows in hectares	333.020,36	370.206,15
in %	16,8	18,3
pastures in hectares	295.016,31	269.082,47
in %	15,0	13,3
marshy ground	2.260,32	1.825,75
in %	0,2	0,1
unproductive land in hectares	107.602,50	117.382,06
in %	5,5	5,8

Changes in the size of categories of farming surfaces during 1954 - 1967

Land category	Difference in hectares	Difference in %
fields and gardens	- 48.664,62	- 14,0
orchards	- 25.200,50	- 80,0
vineyards	- 7.599,31	- 25,0
meadows	- 37.185,79	- 11,0
pastures	- 25.933,84	- 8,9
marshy ground	- 434,57	- 19,0
Total differences in the size of farming surfaces	- 20.246,05	- 1,9

THE GOODS AND STRUCTURE OF THE MARKETS OF SZEGED

I. P é n z e s

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/Hungary/

Szeged, as the largest town in the southern part of the Great Hungarian Plain and as headquarters of Csongrád county exerts a very strong influence not only on its immediate surroundings /Szeged district and settlements of Csongrád county/ but following from its regional functions also on settlements in Bács-Kiskun and Békés counties. /The eastern parts of Bács-Kiskun county and the western parts of Békés county have active connections with it./

The attraction of the daily markets of Szeged is, because of their more advantageous possibilities of realization, very powerful. Consequently the radius of its supply area is large, although part of it has to be regarded only as an occasional supply area in the following called remorted autlying area. In this connection the term "occasional" means not only seasonalness of the marketed supply of goods but also changes in the goods, i.e one or the other settlement brings up once this, once that kind of commodity from this subsidiary supply zone. A stable, constant supplier in this area is only Makó with its neighborhood which is an important onion, garlic, spice root, and carrot supplier of Szeged.

The basis of our analysis is the survey we made in the markets of Szeged on saturday, 19, wednesday 23, and saturday 26 Ostober, 1968. The period chosen can be said ti have been very felicitous because it coincided with the closing of the agricultural season, harvestind. Of course this survey still could not give a complete cross-section of the supply of goods but of the lasting products serving for winter supply partly yes, because these products were marketed in larger quantities just at this time, while other, constant market goods /lowers, milk, curd, etc./ were represented in average quantities.

In the course of the survey we got a true picture of the territorial distribution of the production of goods because at this time fruits and greens fit for winter storing as well as different kinds of fodder were marketed in large amounts. These latter were sold in larger amounts under the influence of the beginning of the fattening of honge.

The survey was well-timed also because we could thus get fairly exact information about the territorial origin and amounts of the goods produced in the previous season /summer/.

Since among the different kinds of circulation of goods the attraction of the center is best reflected by the free market form, of the many components of goods supply we selected only this for our study. Perhaps it is not necessary to say that in our survey we could not aim at completeness even in spite ot the reflection of fasts and realities, for in the survey we intentionally did not take into account the purchases by factories /on contractual basis/ or the MEZŐKER. Trading Company for Agricultural Products, which, on account of their peculiar lines, de-

pend on national centers or export and are relatively independent of local centers.

The role of the free market in the food supply of the population inour towns is still important enough. According to the surveys of 1962 the free markets of Szeged contributed 10,8 % to satisfying the demands of the population in this respect, and this ratio did not change essentially despite a yearly variation of 1-2 %.

We most make it clear that the shop supply is much more important in spite of the not inconsiderable role of the free market. It seems that our undertaking was not fruitless, because we have achieved our aim which was to investigate the degree of participation of the settlements in the supply of the town of Szeged and the territorial distribution of production. Thus we got to know the the origin of the free market goods, that is, the structure of production.

The ratio of the categories of goods from the various sectors on the basis of the Forint value of the goods brough /daily/ to the free markets of Szeged

The marketed volume of goods on 3 market days was calculated /for each kind/ with the average market prices that is, the amount of the marketed goods was reckoned over into Ft value.

The marketed goods were classed in 13 groups. They are shown in Table 1.

1. At the time of our survey among the products brought to the /daily/ markets of Szeged greens were at the top with 21 % /119,608 Ft/ then came poultry and grapes and other fruits

with a round 20 % each /117,252 Ft/ that is, a value of 112,139 Ft/. The share of potatoes was also considerable /100,442 Ft/ the explanation of which was the period of buying the winter supplies. At this time a considerable percentage of the market buyers buy potato supply in one lot. Essentially the same is the explanation of the high ratio of the fodders /52,659 Ft/, because the people living in houses with gardens in the outer zone of the suburs but working in the industry also keep hogs. /They buy the fodder necessary for fattening in half-monthly lots./

There was a considerable amount of flowers /15,053 Ft/ dairy products /15,029 Ft/ and eggs, /14,198 Ft/ although they did not even come near to the value of the former.

Evaluating the amounts ot the different goods in the market we can see the following:

2/ Of the goods marketed greens are at the top. They account for 21,1 % ot the total amount marketed on each market day, 29 % of this came from the outskirts of Szeged 29 % from districts outside the city area, 26 % from the inner area, 9 % from the outer area and 7 % from the agglomeration zone.

The considerable volume of the production of fresh greens in Szeged is explained by the fact that the cooperatives, gardening enterprises, household farmers and small gardeners have organized their production for satisfying the daily market demands of the population. Today the town of Szeged is a rival of the traditionally greens-growing town of Makó and its environs in the daily marketing of goods but it /Szeged/ surpasses also

the other wise important inner, greens-growing area in respect of the volume of marketed goods.

In Szeged and its vicinity for instance the cooperatives grew greens /together with spice paprika/ on 1768 cadastral acres as against the year 1963 when only about 1000 cadastral acres seved this purpose. The growth in 5 years was more than 700 cadastral acres.

3/ The value of grapes and other fruits marketed constitutes 19,8 % of the total value of the supply of one market day, that is, it does not remain much behind that ot the greens.

However, there are fundamental differences in the territorial distribution of the market supply. While the town of Szeged and its remoter outlying areas contribute in an equal proportion to the market supply of greens, the 68 % proportion of the supply of grapes and toher fruits brings into relief the importance of the inner zone. The town of Szeged with its 20 % contribution does not even reach one third of the amount of marketed goods of the inner zone.

The large amount of grape and fruit supply at the inner zone is due partly to the fact that the distance and transport facilities of the buyers market is favorable, partly to the fact that this area is the largest grape and fruit-growing district of Csongrád county and its physical geographical conditions are very favorable to this, and there are good old traditions of cultivation.

4/ Amund the marketed goods living poultry takes an understandably prominent place. Poltry consumption shows a growing tendency all over the world. In our country it was only in the

sixties that fundamental changes were made in the forms and volume of wholesale raising. Csongrád county's poultry-raising is now one of the most rapidly developing industries. In Szentes a provender plant and a poultry processing factory have been established and this latter satisfies the demands and works up the surplus of Csongrád county. A part of its products are exported. A part of the town population of Csongrád county are poultry raisers themselves, but the large majority are, of course, consumers.

Szeged's demand for living poultry is such a force of attraction that the raisers take their stock to its market willingly even from the remoter outlying areas. On the days of survey the largest amounts of poultry /50 %/ arrived from here. In this category of commodity the contribution of Szeged is 20 %, that of the inner zone 16 %. This seems to suggest that the leading place of the outlying ares is not quite stable, not constant.

The large supply is explained by the fact that living poultry can be shipped to greater distances too without any major loss. Further it is explained by the fact that living poultry is a saleable commodity much in demand of which the market price margin is at least 20 %, that is in comparison with most of the market goods it is the highest per kg.

5/ On the basis of its contribution to the total valuae of the marketed goods potato stands in the fourth place with 17,8 %. Since potato is a mass consumption article, it is a constant good in the markets. Large amounts of it are brought to market from the districts especially on market days in late summer and in the fall. The inner zone and Szeged contribute to the potato supply of the market 39 % each.

So their leading position in indisputable. The advance of Szeged is explained by the potato dumping of the cooperatives. The 10 and 11 % contribution of the outer and remoter outlying areas respectively is conditioned by the great distance of haulage. This is so because transportation of large masses of goods /potato/ to great distances is, on account of the minimal profit ratio between the purchase price and the market price not profitable. The 3 % achievement of the agglomeration zone is also understandable, for the potato grown here is used for the producers own consumption.

6/ Fodders account for 9,3 % ot the total value of goods marketed. Forty per cent of this was brought from the inner zone, 26 % from Szeged, nad 23 % from the remoter outlying area. The outer zone contributed 8 %, and the agglomeration zone 3 %. The high percentile contribution of Szeged is explained, as in the case of potato, by the sale of the share of the fodder crop of cooperative members.

7/ The 2,7 % contribution of Szeged to the total of marketed flowers brings the large town character of Szeged into relief. Flower consumption is directly proportional to the degree of town character ot to the size of the town. /This is so because the people of the smaller settlements have an opportunity to grow flowers aroung their homes./ Of course, flower growing is cultivated always in the innermost parts of the zones around the town, baecause the fresher the flowers come to the market the more favorable may be their purchase price. In the case of Szeged we find the following facts:

80 % of the value of the flowers brought to the market comes from Szeged, 18 % from the agglomeration zone, and 1 % from the inner area, while 1 % comes from the auter area and the remoter outlying area.

8/ Eggs and dairy products represent approximately equal shares in the total market supply, the share of eggs being 2,5 that of the dairy products 2,7 %.

For both of these products the main supplier is the inner zone because 51 % of the eggs, 69 % of the milk and dairy products come to the markets of Szeged from this area. In respect of the egg supply the remoter outlying area is second with 21 %, the outer zone and Szeged are third and fourth with 11 % each, while the agglomeration zone is fifth with 6 %.

In respect of the supply of dairy products Szeged is second with 19 %, the remoter outlying area is third while the supply from the outer zone and the agglomeration zine is unimportant.

The percentile market supply values per 1000 persons and 100 cad. acres of the different settlements and their distribution according to the kinds of goods are characteristic of the villages of each zone.

Fig. shows these differences. At the same time the cartogram does not show the differences between the values of the marketed by the different villages: so, for instance, certain settlements like Tiszasziget, Csanádpalota, Csengele, etc., fall into categoris which are realistic only on the basis of the inner structure of the market supply of the villages.

The zones of the /daily/ free markets of Szeged and the structure of their goods supply

Besides Szeged's own internal supply its /daily/ markets are supplied with goods from four other areas. Fig. 2.

The average value per market day ot the total supply brought to market on market day was 564.702 Ft; 37 % ot this came from the socalled inner zone, 28 % from the vicinity of Szeged, 22 % from the remoter outlying area, the so-called scattered market areas, 8 % fromt the outer zone, and 5 % from the agglomeration zone.

The most important supllier of the daily markets of Szeged is, on the bais of percentile contribution, the inner zone. It takes absolutely first place in fruit, grape, milk, dairy goods, egg, fodder, bread crop and live animal supply. In the potato supply it shares the first place with Szeged although surpasses it with a 1000 Ft value of goods. In respect of the supply of animal or vegetable products as well as other commodities it is second after Szeged. It hoods the third place in regard of the supply of several products such as live poultry, greens, flower and sunflower seeds.

The value of the average market supply of the inner zone /on one market day/ is 210.360 Ft. Owing to its inner structure of goods it brings the largest amounts of grapes and fruint to the markets of Szeged. These represent 36 % of the amount of goods on the market. After them come potatoes with 18 % and greens with 14,5 %. Fodders come in the fourth place with 10 %.

This zone is, on the basis of its supply of goods, the fruit, grape, potato, greens, and fodder supplier of Szeged. This character of it is completed with its supply of live poultry /8,5 %/ and dairy products /5 %/.

The leading position of the inner zone in the supply of the markets of Szeged is due various factors:

1/ its distance from Szeged is favorable; even its remortest village is not farther away than 25 km and so the town can be reached from it in one or one and a half hours even with slowest conveyance /horse carriage/;

2/ all of its villages are connected with Szeged by highways /from some settlements the market can be reached by narrow-gauge railway/;

3/ the distribution of the population according to professions is favorable. A relatively great number of the population are peasants by profession and their decrease in number is slower than in the agglomeration zone.

According to its supply of 156.453 Ft in value Szeged holds the second place among the zones.

Within its own supply potato os at the top with 24 %, then come greens with 21 %. On account of its large amounts poultry is the third in order; then come grapes and fruits, fodders and flowers. The flower demand of the markets of Szeged is nearly exclusively satisfied by Szeged itself. Greens also play an important role in the self-supply of the town. Potatoes, poultry, grapes and fruit only after these.

On the basis of the goods brought to the market the town of Szeged can be said to the supplier of its own markets of greens, flowers, potatoes, poultry, grapes and other fruits.

In comparison with the other areas the town of Szeged takes second place in the supply of its own markets with a contribution of 28 % which is natural because it is the agricultural population in the territory and vicinity of the town that feels the demand of the markets best and at the same their transport facilities and distances are the most favorable.

The town ensures itself a leading position among the areas in respect of the products meaning the greates specialization. So it is absolutely first in the supply of flowers, animal and vegetable products, and various articles of consumption. It shares the first place in greens and potato supply with the remoter outlying area as well as with the inner zone. It is second in the supply of grapes, fruits, poultry, milk and dairy products, fodders and sunflower seeds. It is third in the percentile participation of the areas in supply, namely in the supply of other live animals and eggs.

In the comparison of the supplying zones the agglomeration zone of Szeged falls to the last place in respect of total market supply with a contribution in the value of 26.874 Ft. This zone is, from the point of view of the number of inhabitants the most vigorously growing area of the town, therefore the demands also grow here most rapidly. From this it follows that it cannot contribute to the supply of Szeged with considerable amounts of most products. It has second place among the areas only in the supply of flowers and animals other than poultry.

It figures with greens in the supply of the markets of Szeged with 33 %, then comes the supply of poultry with 26 %, potatoes with 12,5 and flowers with 10 %.

The position of the agglomeration zone in the supply of Szeged is, determinded by the following facts:

1/ The so-called agglomeration zone of Szeged has grown to Szeged relatively rapidly, in the last 10 years. During this time its population has grown and has been reorganized more rapidly than that of the town itself.

A large part of its population has been employed in the industry and as such appeared as a new layer of buyers. Thus a large part of the earlier surplus products are bought up locally.

2/ The special structural change in agriculture has not been able to keep pace with the rapid transformation /growth and reorganization of the population, rapid growth of the number of those employed in industry/; therefore it has fallen behind in its accomodation to the more favorable market conditions.

Of course not all settlements of the agglomeration zone have developed at the same rate, There are therefore rather considerable differences between then.

a/ Kiskundorozsma sends its goods to the markets of Szeged, yet it cannot meet the demand of its own free market. Its internal market supply is scarcely more than 19 %. So 81 % of the goods brought to its market come from immediately neighboring settlements, Kiskundorozsma contributes chiefly live poultry, greens and potatoes to the daily market trade of Szeged.

b/ Algyő had been producing its own Tdaily /supply requirement/ of market goods/ until the opening up of the oil fields nead Szeged, but now it cannot satisfy the suddenly increased number of workers. Therefore Algyő also appears in the markets of Szeged as purchaser. It has a surplus only in earlier strongly specialized goods as live poultry, greends, and eggs.

c/ Tápé, Szőreg, Gyálarét are self-suppliers even now for various market products, but for some products they are, like Szeged buyers.

Szőreg is an important flower and green supplier of the market of Szeged but among its goods brought to the market only the fodder crops deserve to be mentioned.

Tápé is important as a poultry and greend supplier though its potato supply is not inconsiderable either. It supplies also a substantial amount of eggs.

Gyálarét is first of all a green supplier, but its fruit and egg supply is also important enough.

The percentile contribution of the outer zone /to the daily market supplies Szeged/ is in agreement with its location. It is true that the situation of these settlements from the point of wiew of transport facilities is really not worse than that of the remotest villages in the inner zone, but in places their physical geographical conditions are more unfavorable. In the case of these villages the sending of supplies to the markets of Szeged is unfavorably influenced also by the diverting

and attractind effect of other markets. Their goods are distributed between different markets.

It follows from their respective distances that the structure of their agriculture feels and follows the indirect effect of the market but slowly. They sell the large amounts of their surplus products at the local purchasing stations. This zone is rather the supplier of purchasing companies and industrial establishments in Szeged. From this it follows that in a comparison of the market-supllying activities of the various areas this zone takes the first place only in the supply of sunflower seeds. In grape, fruit, bread crop, and egg supply it occupies only the third place.

Investigation of the structure of the internal supply is especially important in the case of this zone because its role in supplying the market of Szeged is easier to judge in this way. In the internal structure of its marketed supply this zone has given a large contribution in greens which was 25 % of the total value. The contribution of fruits and grapes was 21 %, that of potatoes 21 %. As a complementary good, poultry is in the fourt place with 14,5 %. Fodders represent 8,5 % and eggs 3,5 %. Regarding its internal structure its marketed its marketed egg supply is larger than that of the other areas. On the basis of the internal structure of the zone we may state that it is the grape, fruit, potato, green, poultry, fodder and egg supplier of Szeged.

The remoter outlying area comprises partly settlements in Bács-Kiskun county /Csólyospálos, Kiskunmajsa/, partly Makó and its neighborhood as well as the district of Kistelek and a few remoter settlements. It is true that generally appear in the markets of Szeged only with one or two kinds of products but

with large quantities. This area holds the third place with a marketed value of 124.776 Ft among the supply zones. It holds the first place in poultry supply. In green it shares the first place with Szeged. It is second in egg supply, while in the supply of fodder, potatoes, dairy products and other vegetable and animal products it holds the third place.

In the internal structure of the area live poultry is at the top with 48,5 %, followed by greens with 27,5 %, fodders with 10 %, and potatoes with 8,5 %.

This area is the poultry, green, fodder and potato supplier of Szeged.

Similarly as in the other areas, here too, various territorial types can be distinguished on the basis of the marketed goods:

a/ Makó and its environs besides supplying their own market appear not only in Szeged with their goods but also in Hódmezővásárhely and Orosháza.

b/ Kiskunmajsa, besides supplying its own market, sends products to Szeged but so does Kiskunhalas too, while Csólyospálos is more attracted by Szeged than by Kiskunmajsa.

c/ Kistelek itself, on account of its large market hardly sends any goods to Szeged; on the other hand, its environs appear with larger amounts of goods at the markets of Szeged. /Table 2. Fig. 3-4./

Summing up:

On the basis of the daily market supply the following supply zones have developed around Szeged:

1/ inner flower, green, poultry, suppling-potatozone
2/ intermediate: grape, fruit, green, potato, dairy product, egg-suppliying zone
3/ transitional: grape, fruit, green, potato, fodder, breadcrop-supplying zone, and
4/ outer: green, poultry, egg and fodder-supplying zone.

Figs. 5 and 6.

Figures

Fig. 1. The share of the three leading groups of commodities in the total market supply of the settlements calculated for 1000 persons or 100 cadastral acres of plowland.

Signs

1. Signs of the group of commodities in the first place	2. Sign of the group of commodities in the first place	3. Sign of the group of commodities in the third place
1. greens	8. greens	a/ greens
2. fruits, grapes	9. fruits, grapes	b/ fruits, grapes
3. living poultry	10. living poultry	c/ living poultry
4. potatoes	11. potatoes	d/ fodders
5. fodders	12. fodders	e/ eggs
6. eggs	13. eggs	f/ dairy products
7. flowers	14. flowers	g/ potatoes
		h/ bread crops

Fig. 2. Areas of the free markets of Szeged

Signs

1. Szeged
2. agglomeration zone
3. inner zone
4. outer zone
5. remoter outlying zones

Fig. 3. The Ft percentage of the different goods from the various areas in the supply of the free markets of Szeged.

Signs

I. Bread crops	V. Greens	X. Milk and dairy products
II. Fodders	VI. Grapes and other fruits	XI. Other living animals
III. Potatoes	VII. Flowers	XII. Other animal and vegetable Products
IV. Oil seeds /sunflower/	VIII. Living poultry	XIII. Different consumer goods
	IX. Eggs	

1. Szeged	3. inner zone	5. remoter outlying area
2. agglomeration zone	4. outer zone	

Fig. 4. The Ft% share of the different commodities in the total supply of the free markets of Szeged.

Signs

1. Bread crops	8. living poultry	I. inner zone
2. fodders	9. eggs	II. outer zone
3. potatoes	10. dairy product	III. remoter outlying areas
4. oil seeds /Sunflower/	11. living animals other than	IV. Szeged
5. greens	12. other animal and vegetable products	V. agglomeration zone
6. fruits		
7. flowers		
	13. different consimer goods	

Fig. 5. Ft value per 1.000 persons of the total goods brought to the free markets of Szeged from the different settlements.

Mean values of the different areas:

1. over 5.370 Ft
2. between 5.370 - 2.231 Ft
3. between 2.231 - 1.284 Ft
4. between 1.284 - 996 Ft
5. between 996 - 606 Ft
6. under 606 Ft

Fig. 6. Ft value per 100 cadastral acres of the total of goods brought to the free markets of Szeged from the different settlements.

Mean values of the different areas:

1. over 1.531 Ft
2. between 1.531 - 343 Ft
3. between 343 - 140 Ft
4. between 140 - 106 Ft
5. between 106 - 43 Ft
6. under 43 Ft

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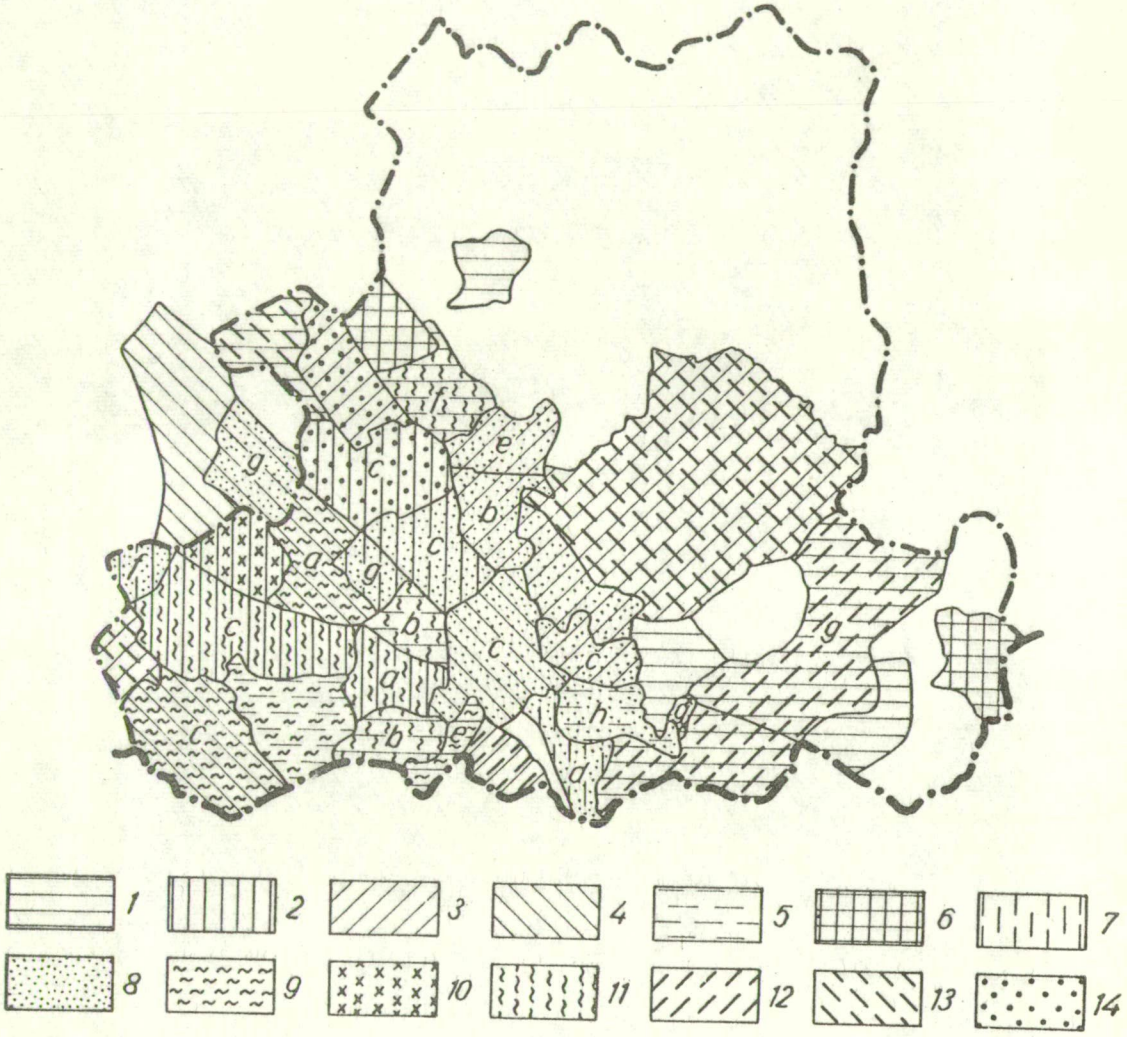

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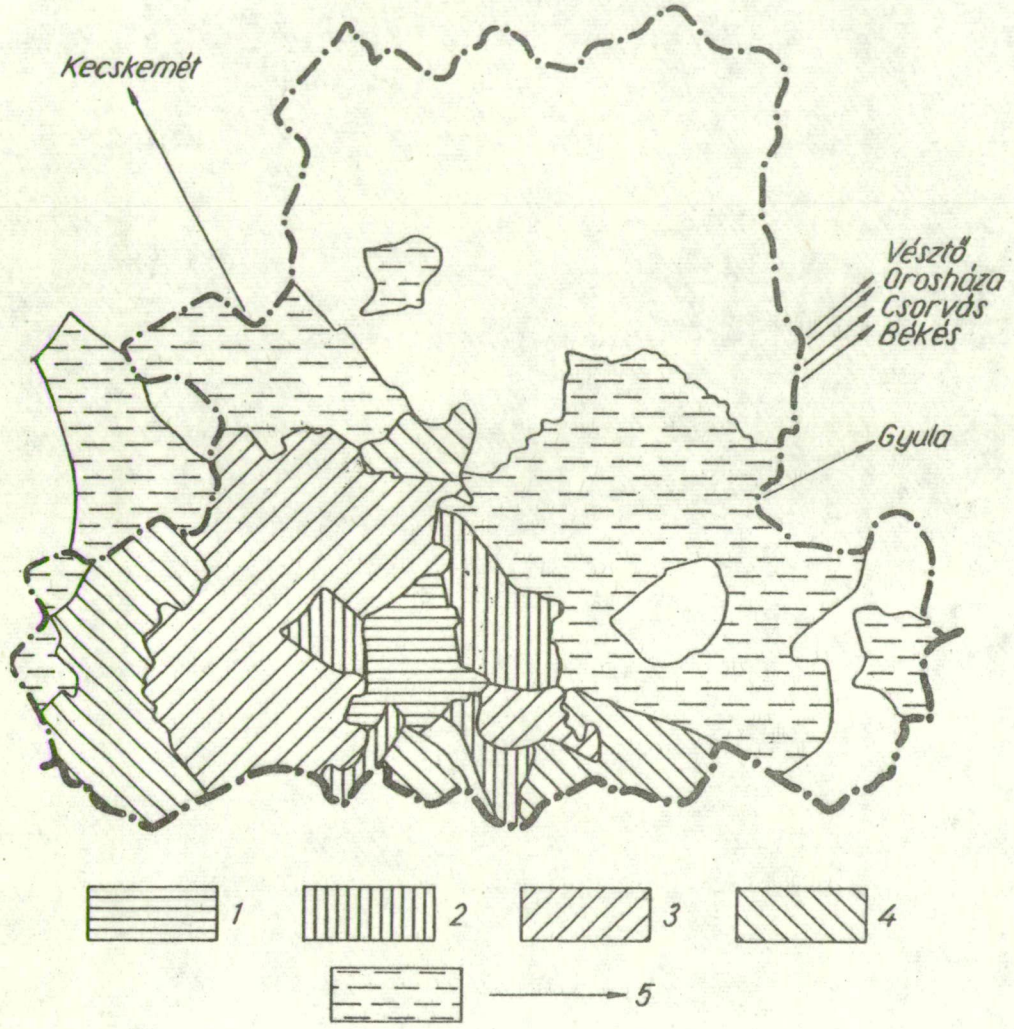

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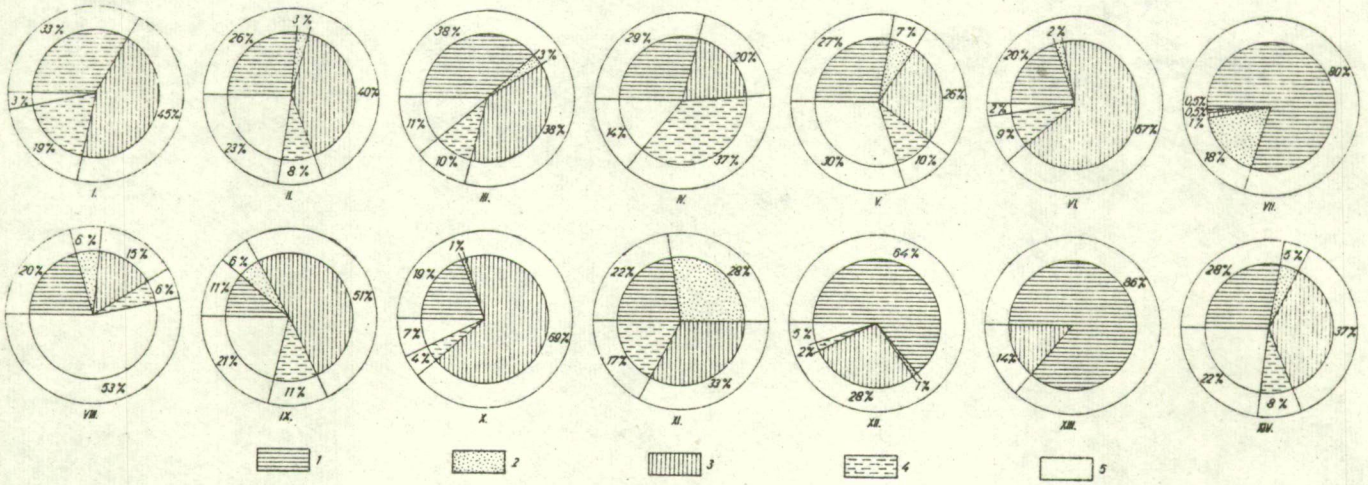
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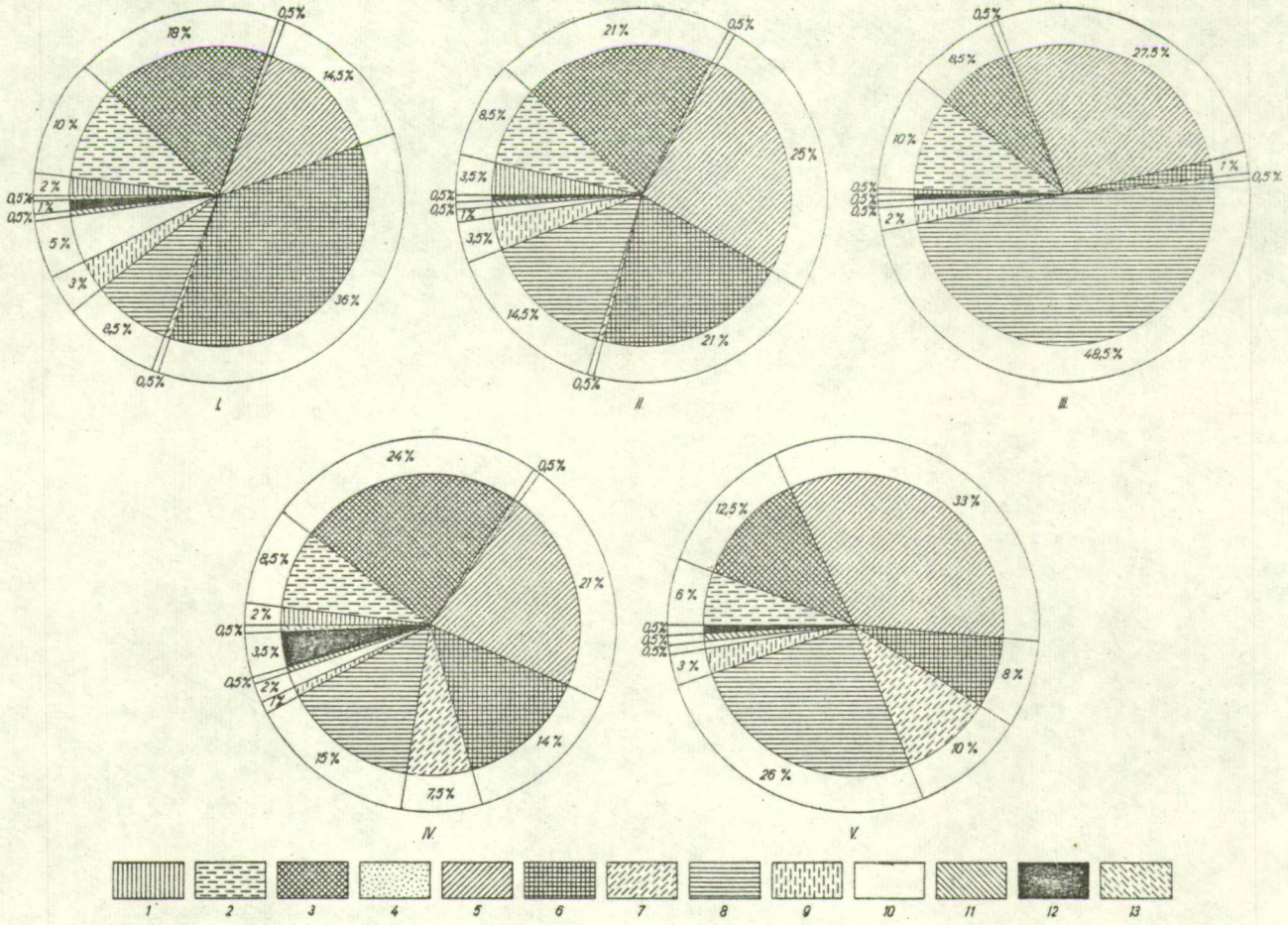
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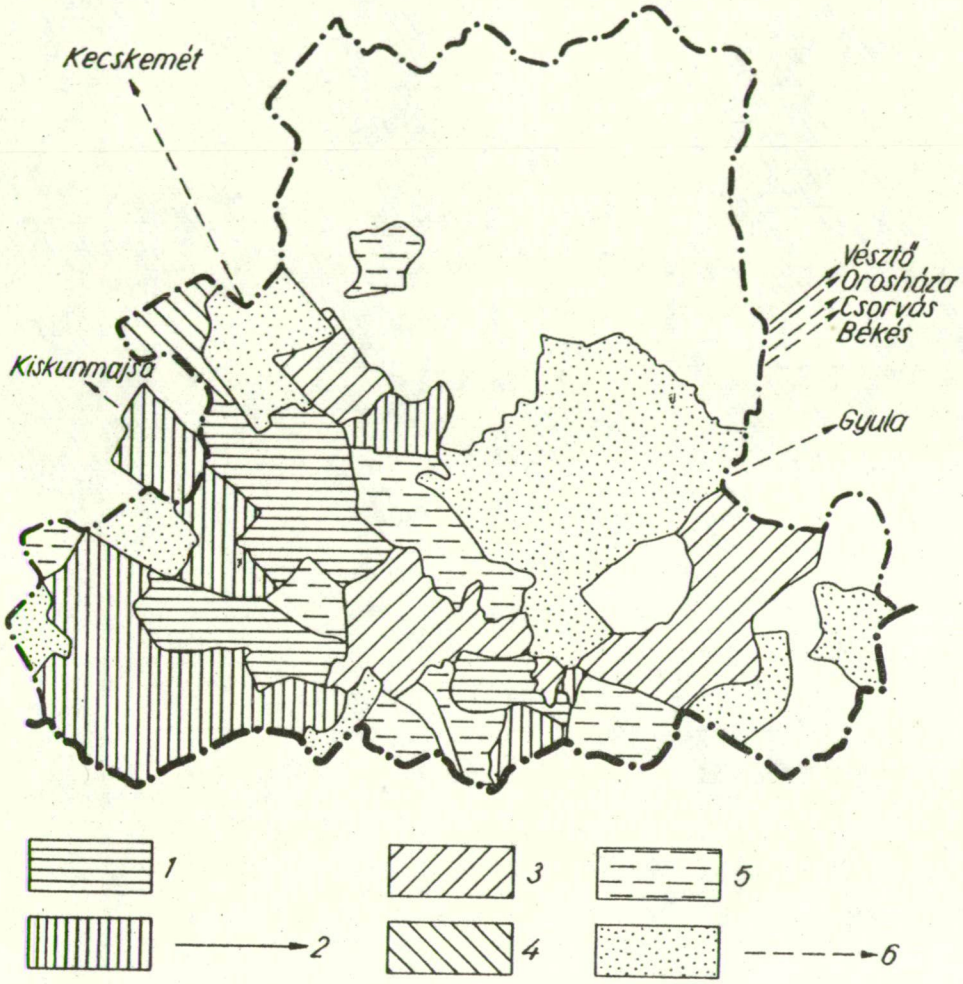
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Fig. 5.

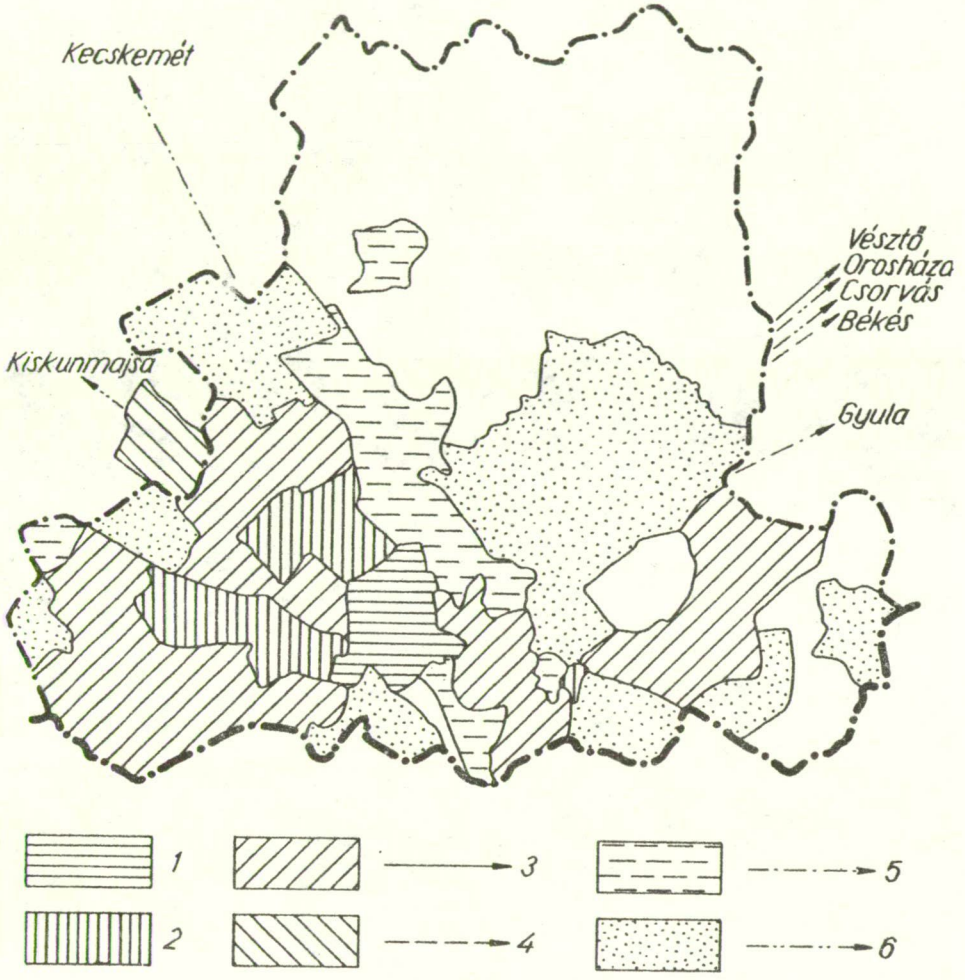
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Fig. 6.

CONTRIBUTIONS A L'ETUDE DES TYPES DE VILLAGES EN ROUMANIE

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On pourrait comparer les villages á des organisme qui naissent et se developpent, pouvant devenir - d'une part - des bourgs ou des villes, ou - d'une autre part- pouvant connaitre une stagnation on méme un regrés, á la suite duquel ils peuvent disparaitre.

L'endroit où apparaissent les villages n'est pas fortuit, car déjá avant leur fondation, il y a tout un complexe de facteurs physico-géographiques, économico-géographiques, socio-politiques et historiques qui agit sur la région respective. Ces facteurs peuvent actionner ou tous, ensemble, ou seulement, en partie; et - évidemment - pas tous en égale mesure. Cette action a pour conséquence une distribution différente des caractéristiques favorabiles á l'habitat. D'habitude, les établissements humain apparaissent la où convergent ces caractéristiques, créant, ainsi des endroits propices á l'habitation, endroits que nous appelons des points de valeur habitogéne[1/].

1/ Ces points peuvent étre de grande valeur habitogéne /c'est-á-dire de valeur urbigéne/, lorsque le milieu offre de grandes possibilités á la création d'une vile ou au developpement d'un village en ville; ou peuvent étre de petite valeur habitogéne /c'est-á-dire de valeur rurigéne/, lorsque les conditions du milieu naturel offrent des possibilités modestes pour la création des villages.

Ces facteurs continuent á agir - á effets positifs, constructifs - aussi aprés l'apparition des villages. Parmi eux se détachent les facteurs physico-géographyques, dont l'influence est plus forte, plus continue et plus multilaterale que celle de tous les autres facteurs. Aprés avoir contribué á l'établissement de la position des villages, les facteurs naturelles ont un important apport aussi en ce qui concerne leur extension /agissant, donc, sur la forme et sur la dimension des villages/, leur texture /en fonction des éventuels accidents de terrain de la région/ et, plus tard, aussi en ce qui concerne la structure des villages. Leur influence différe d'une unité naturelle á l'autre. En général, dans les régions montagneuse - où le relief est plus fragmenté et se trouve á une grande altitude - l'influence de ces facteurs est plus intense que dans les régions collinaires et, sourtout, dans les plaines.

Quant aux facteurs économico-géographiques, ceux-ci, aprés avoir contribué eux aussi á l'apparition des localités /il s'agit des possibilités d'existance des habitants/, niont qu'un role mineur, en déterminant la maniére et le potentiel des moyens de vivre, á savoir du degré de développement /d'habitude de facon plus ou moins lente/ des villages.

Dans la phase initiale l'on peut parler du type génétyque des établissements humains, donc de leur provenance: des villages pastoraux, des villages forestiers, des villages qui ont á leur origine une ferme ou une bergerie, des villages de colonisation etc. Pendant leur évolution, le spécifique de ces villages peut s'estomper á la suite du changement de l'occupation d'une partie des habitants ou bien á la suite

de l'arrivés, dans ces villages, d'une population dont la profession différe de celle de la population aborigéne.

Dans cette premiére phase de développement, se dessinent graduellement les traits spécifiques des villages, ce qui justifie leur attribution á un certain type. L'on peut considérer qu' ils appartiennent déjá á un tel type, depuis la période où le milieu physique offre toutes les possibilités de la précision de leurs caractéristiques morphologiques: position, forme, dimensions, structure, texture.

C'est la phase de l'influence des facteurs naturels sur les caractéristiques morphologiques des villages.

Dans une seconde phase, les villages évoluent dans le cadre des limites permises aussi bien par les possibilités offertes par le milieu physique, que par celui économique. L'influence des facteurs physico-géographiques diminue de plus en plus-présentant les caractéristiques d'un conditionnement du cadre naturel - car le village s'adapte au milieu géographique tout en utilisant, par détails, les particularités du microrelief, du microclimat, des sols etd, ce qui conduit á un établissement de plus en plus précis de ses caractéristiques morphologiques.

Dans cette étape d'évolution ont lieu, d'habitude, certains évenements majeurs de la vie du village, sortout en relation avec la discordance entre les exigences de l'accroissement d'une population en pleine évolution numérique et les possibilités matérielles offertes par le milieu - ces possibilités restant approximativement les mémes ou augmentant de trés peu, á cause de la réduction de la superficie cultivable qui revient

á chacune des exploitations, d'une part, et aux moyens rudimentaires des travaux agricoles et de la transformation des produits du sol, de l'autre part. Avec le temps, pendant l'évolution des villages, s'établit un certain équilibre entre les besoins et les possibilités, qui méme á un développement normal des localités rurales. Lorsqu'une calamité á lieu /guerre, glissements de terrain etc./ certains villages sont abandonnés; ultérieurement, sur leurs emplacements, peuvent étre fondés d'atres villages, si le milieu naturel offre des moyens d'existence en mesure sufficante.

Si dans la premiére phase, les facteurs physico-géographiques ont une plus grande portéé dans l'évolution des villages que ceux économico-géographiques, dans cette seconde étapequi peut durer bien plus, en temps, que la premiére - l'influence des facteurs naturels diminue, tandis que ceux économico-géographiques commencent á se manifester plus activement dans l'évolution des établissements ruraux.

Nous appelons cette seconde étape, la phase de l'adaptation au milieu naturel et de l'achévement des particularités morphologiques des villages.

Suit la troisiéme phase, celle dans laquelle la diminution continuelle de l'infiuence des facteurs physico-géographiques est due á l'adaptation des villages aux condition naturel les et á l'utilisation de celles-ci pour le développement de ces localités, pour l'augmentation du niveau de vie des habitants. Les éléments du cadre naturel - les mémes, plus ou moins, qu'au moment de l'apparition des villages - ne sont plus á méme d'assurer les conditions favorables au développement de ces localités dans un état plus avancé d'évolution, constituant méme un frein dans leur progrés. Cet arrét est réduit, par l'interven-

tion de plus en plus active des facteurs économico-géographiques. Si pendant les deux premiéres phases, la contribution de ces facteurs au développement des villages était bien faible, ayant plutot un rôle passif /celui d'offrir les possibilités d'existance/, en échange pendant cette troisiéme étape, ils élargissent leur contribution par l'extension des superficies cultivables, par l'application des méthodes agrotechniques avancées, par l'exploitation - eventuelle - de certaines ressources du sous-sol etc., de nature á créer une diversification et une spécialisation supérieures de l'économie. C'est á mentionner encore que l'action sur le côté qualitatif de l'économie des villages /augmentation de la production, l'obtention d'espéces supérieures, transformation des produits du soletdes ressources du sous-sol etc./, tend á liquider la discordance entre les besoins des habitants et les possibilités économiques, éliminant la maniére de résoudre ce probléme par la migration de la population. C'est caractéristique pour cette phase l'intervention de l'état dans l'évolution des établissements ruraux, ce qui a pour conséquence le développement continuel des villages d'aprés des plans judicieusement élaborés, l'augmentation de leur niveau urbanistique /systématisation, dotations économiques et socio-culturelles etc./.

Nous avons appelé cette derniére période, la phase actuelle de l'utilisation des facteurs géographiques pour le progrés des établissements ruraux d'aprés des plans élaborées par l'état.

Il y a maints géographes, ethnographes et sociologues, qui ont étudié les types de villages. Leur apport en fut bien

important, sans doute, mais ils ne sont pas toujours arrivés aux méme conclusions, á cause des points de vue différents qu' ils ont abordé dans leurs recherches.

Déjá depuis la premiére décennie de notre siécle, le professeur S. Mehedinti á attiré l'attention sur l'existence de trois catégories de villages: de montagne, de colline et de plaine /6/. Ultérieurement, le professeur Vintilá Mihailescu - ayant pour base un questionnaire de de A. Demangeon - á établi, pour la Roumanie, trois types de villages: dissipés, dispersés et compactes /7/. Aprés avoir minutieusement examiné les caractéristiques de ces types, il a élaboré aussi une carte de leur distribution en Roumanie /8/.

Quoiqu'ayant en vue aussi d'autres caractéristiques morphologiques, V. Mihailescu met l'accent, dans sa classification, surtout sur le structure des villages. C'est pourquoi, bien qu'unanimenent reconnue par les géographes roumains, cette classification a comporté quelques complétemensts., á l'occasion de son application á l'étude détaillés des villages. Ainsi, tout en classifiant les villages de la région de Vrancea, le professeur N. Al. Rádulescu /11, p. 138-143/, ajoute aussi "l'accident de terrain qui á déterminé l'établissement humain", tout en associant aux types dispersé et compacte, la nomenclature de <u>riverain</u> /dans le lit majeur et sur la terrasse la plus basse/, de <u>terrasse</u> et <u>de côte</u> /pente/. Dans une étude sur les villages de Transylvanie et de Banat, l'ethnographe Romus Vuia a décelé /á part les types établis par V. Mihailescu/ d'autres types, tels: le village de vallée, le village de route et le village géométrique. R. Vuia met, donc, l'accent non seutlement sur la structure, mais aussi sur la position et la forme. Le sociologue Henry Stahl /13/ mentionne l'existence de village -

rue. L'on parle souvent aussi de villages de vallée, de villages - étoile, de villages linéaires.

Il en résulte qu'au début, dans le cadre de l'étude des types de villages de Roumanie, l'on a abordé presqu'uniquement le probléme de leurs caractéristiques morphologiques, ayant pour critére de typisation une ou plusieurs de ces caractéristiques /structure; structure - position; structure-position-forme etc./, selon les divers auteurs.

Il s'agit bien d'une premiére étape dans l'étude des types de villages de Roumanie.

Les progrés importants enregistrés pendant le dernier quart de siécle dans la géographie des établissements humains, le méme que la recherche détaillée dans l'étude des types de villages /résultat du développement rapide de ces localités et de leur connaissance scientifique dans le but de leur promotion á un niveau supérieur - surtout dans les pays socialistes/ a rendu nécessaire la réexamination de ce probléme.

Si, jusqu'á récemment, dans l'évolution lente des villages - les facteurs économico-géographiques avaient un rôle mineur /tout en offrant les possibilités d'existence/ et il contribuaient á tracer le contour de certains caractéristiques morphologiques, actuellement ceux-ci constituent le principal facteur de progrés des établissement, de la R. S. de Roumanie. De ce fait, les recherches géographiques ont du évidencier, nécessairement, cette nouvelle intervention et ses effets dans la vie des villages. Ainsi, il y a des chercheurs /1/ qui mettent l'accent sur les fonctions économiques des villages, sur la base desquelles ils établissent une série de types et de

sous-types fonctionnaux. La typologie des établissements ruraux s'appuyer sur les relations de production, qui déterminent le processus de production, de méme que le degré de développement de la technique utilisée dans l'exploitation et la transformation des produits du sol et du sous-sol. Ces deux éléments sonstituent des caractéristiques fondamentales de l'intervention de l'homme vis-á-vis du village, qui apparait comme une forme d'organisation territoriale des forces de production /1, pl 13,32/. Les fonctions économique s'exercent dans le cadre naturel et influencent les caractéristiques morhphologiques des villages, qui apparaissent, donc, comme une conséquence de l'action de ces fonctions. Le professeur Ion Sandru, a distingué, lui aussi, une série de types fonctionnaux de villages, insistent sur les formes d'urbanisation et de systématisation de l'habitat. La situation actuelle de ces localités constitue un échelon supérieur dans leur marche en avant, représentant la conséquence des mesures destinées á la réalisation, chez nous, d'une économie rurale intensive et complexe /15, p. 219/.

De nos recherches sur le terrain résulte que tout un complexe de facteurs physico- et économico-géographiques, socio-politiques, historiques, contribuent á la constitution des types de villages de la R. S. de Roumanie; mais ceux-ci n'agissent pas de la méme facon ou avec la méme intensité ni dans l'espace, ni dans le temps.

Parmi ces categories de facteurs, les deux premiéres agissent, d'habitude, de maniére permanente, tandis que les autres, surtout en certaines périodes de la vie des villages et avec intensités différentes. De la premiére catégorie de facteurs, ceux physico-géographiques /formes de terrain, microclimat, sols,

végétation etc./ déployent leur influence spécialement sur les caractéristiques morphologiques des villages: la position, la forme, les dimensions, la structure, la texture; lorsque les facteurs économico-géographiques /ressources du sol et du sous-sol, technique de leur transformation, relation de production/ influencent surtout le specifique, le potentiel et les fonctions économiques[2/]. Les caractéristiques morphologiques sont quantitatives, statiques, tandis que celles économiques sont qualitatives, dynamiques, progressistes. Dans le stade actuel de l'évolution des villages, leurs caractéristiques morhpologiques apparaissent comme un témoignage de l'ancienne contribution des facteurs physico-géographiques, auxquels s'est adaptée la société humaine et que celle-ci utilisé, á présent, dans ses progres buts; en échange les facteurs économico-géographiques exercent une influence de plus puissante. La prédominance de ceux derniers n'est pas seulement la conséquence naturelle de tout up processus évolutif, mai aussi celle de l'intervention de l'étet, qui consiste autant dans la crue du niveau technique des moyens de production /ce qui a engédré l'augmentation de la production/, que dans l'amplification des relations de production, qui a eu pour résultat la réduction sensible de la différence entre le village et la ville. De ce fait, les facteurs économico-géographiques contribuent directement á la mise en évidence du spécifique économique des villages, á la crue de leur potentiel, de méme qu'á la diversification et á l'amplification de leurs fonctions - et indirectement, au progrés de leurs caractéristiques morphologiques.

C'est á remarquer qu'entre les différentes caractéristiques morphologiques des villages il n'y a pas uniquement une

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2/ Ces derniers trois éléments qui établissent le profil économique des villages, sont en rapport avec le genre des produits, leur quantité et le destination des surplus /industrialisation locale, échanges etc./. Si le village ne produit que autant qu'il consome, cela ne crée pas des fonctions.

liaison bien étroite, mais aussi une influence mutuelle évidente; c'est pourquoi un type de village peut avoir non seulement la structure respective, mais, plus ou moins, aussi les mémes position, forme, dimensions et texture. Quelques une de ces éléments peuvent prévaloir les autres. Dans ce cas, ils contribuent á l'établissement du spécifique morphologique des localités, de méme qu'á une définition plus précise des sous-types. Par exemple la <u>situation d'un village</u> dans une vallée étroite dans laquelle les maison sont rangées en fil, influence toutes les particularités: forme /linéaire/, dimensions /allongé et étroit/, structure /une ou deux rangées de maisons/, texture /irréguliére/ etc. Il faut mentionner, également, qu'aux villages qui accomplissent certaines fonctions économiques, corespondent certaines caractéres morphologiques. Voila pourquoi, sur les cartes, les limites de la distribution des types économiques des villages se superposent - plus ou moins - aux limites de la répartition des types morphologiques[3/].

Il en résulte qu'un travail sur les types de villages peutétre réalisé si l'on étude aussi bein leurs particularités morphologiques, ainsi qu'économiques. Il en résulte, également, qu'on peut exécuter une étude <u>seulement</u> des types morphologiques ou bien <u>seulement</u> des types économiques, lorsqu'on considére seulement l'un de ces deux aspects.

De ce que nous venons d'exposer, nous pouvons conclure qu'en Roumanie il y a, á présent, <u>quatre types</u> de villages, á savoir:

3/ V. aussi 1,p.32: "Généralement, dans chacune des zones économiques predomine un village á certaines fonction, dimensions, forme etc., prénoméne qui conduit á la caractéristiques du type".

1/ le type pastoral-forestier des régions montagneuses;

2/ le type á économie-mixte caracteristiques des régions de collines et de plateaux;

3/ le type á économie-agraire, dans les régions basses, de plaine;

4/ le type industriel, en diverses catégories de relief.

L'empreinte du milieu naturel sur les types de villages est plus évidente dans les régions hautes que dans les basses. Parmi ces quatre types, le plus indépendant des conditions du milieu physique est le type industriel.

Le stade avancé d'évolution des villages - représenté surtout par une grande diversification des moyens de productions de méme que le haut degré d'adaptation des établissement humains aux particularités physiques et économiques du milieu naturel, on conduit á la création de sous-types. Ainsi que les facteurs physico-économico-géographiques ont contribué á établir les caractéristiques économiques et morphologiques -et par conséquent á préciser les types de villages - de méme les facteurs micro économico- et physico-géographiques peuvent contribuer á fixer les particularités locales de ces caractéristiques et par conséquent a préciser les sous-types des villages.

Donc, le facteur micro économico-géographique fait que dans l'ensemble de la zone de distribution du premier type de village apparaissent deux sous-types:

a/ pastoraux et
b/ forestiers;

dans le deuxiéme zone, les sous-types:

a/ d'élevage,
b/ de pomiculture,
c/ de viticulture[4/]

dans la troisiéme zone, les sous-types:

a/ de céréaliculture,
b/ de légumiculture,
c/ de culture de certaines plantes spéciales /industrielles, médicinales etc./

en fin, dans la quatriéme zone, les sous-types:

a/ d'industrie extractive,
b/ d'industrie de transformation[5/] /voir et 1, p.34 et suiv./.

Aussi, d'aprés les caractéres morphologiques, dans chacune de ces types sont á distinguer les sous-types de villages qui suivent: de vallée, de versant, d'interfleuve. A leur tour, les villages de vallée, peuvent étre: de la région du bassin de réception /cours supérieur, sources/, des régions de rétrécissement des vallées, des bassinetes; ceux de versant sont: en amphitheátre, en forme de gallerie /villages-gallerie/; ceux d'interfleuve: de champ, de zones dépressionaires /creux, crovs, etc./.

4/ Chacune des activites prédominantes spécifiques aux régions de collines, on ajoute - dans une mesure plus ou moins petite - l'agriculture, qui présente cependant une importance secondaire.

5/ En plus de l'occupation prédominante, qui forme le spécifique économique des villages, on en enregistre également d'autres secondaires qui contribuent á contourev, le sous-types économique. De plus, la reunion de ces activités peut donner naissance á de nombreuses sous-types, tels que: viti-pomicole, pomicole ainsi que d'élevage de bétes de somme, viticoles et agricoles etc.

De méme que les types de villages, les sous-types présentent aussi bien des caractéristiques économiques, que des caractéristiques morphologiques. Par conséquent, un village peut appartenir au sous-types forestier d'interfleuve, ou au sous-type d'élevage et de céréaliculture situé dans un bassinet, ou au sous-type céréalier de plaine etc.

Si, pendent certains stades de plus en plus avancés, les différences entre le village et la ville S'estompent graduellement, il en est autant des différences entre les types et les sous-types, qui tendent á diminuer aussi bien par l'accomplissement de la part des villages de certains fonctions complexes, que par l'influence presque nulle du cadre naturel[6/].

6/ Dans le cadre du présent travail peu étendu, on n'a pu aborder que certains aspects, plus interesants, propres au type de villages de la R.S. de Roumanie. Aussi, l'auteur se tient á la disposition des chercheurs pour d'autres détails susceptibles de les interesser.

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SETTLEMENT SYSTEM OF SCATTERED FARMSTEADS AND PROBLEMS OF THE NEW COMMUNITIES WITH SCATTERED FARMSTEADS ON THE GREAT PLAIN

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Within the problem of settlement system of scattered farmsteads of the Great Plain, the questions of population and settlement of the new communities with scattered farms represent special ones. In the course of my investigations the field-work has been representative, it has spread over the whole territory of the Great Plain, and has included one fifth of the new communities with scattered farms. The survey of changes between 1960 and 1970 according to communities has been prepared on the basis of the material of two censuses, including six counties /this is more then the 90 % of the area with scattered farms of the Great Plain/. It has been carried out not only in connection with the new communities but with the old ones, too, for the sake of comparison. In my present lecture, I. try to summarize the results of investigation up to now.

As it is well known, the special settlement system of scattered farmsteads of the Hungarian Great Plain has been inherited from the pas. The scattered farms, as independent working and

dwelling place units of peasant small-scale producers, adapted themselves to the comparatively dense network of villages and market-towns of considerable extent, and were dispersed in the agricultural area. According to their genesis, they habe constituted a unity with the closed settlement /town or village/ on the confines of which they have taken place. Administrative unit of a small population consisting for the most part of inhabitants of scattered farms, in the course of the capitalist development has hardly come into being. The number of these communities has considerably increased in the course of the administrative reform after World War II.

The social-economic transformation of the country after World War II gave a hope also to the solution of the much-debated problems of "scattered farms". In the case of replacement of the private peasant farms by socialist large-scale farms, the scattered farm as agricultural working place theoretically ceases to exist, and so it can be done away with also as dwelling place. It makes possible for the population of scattered farms to move to the already existing closed settlements, or to the ones to be newly established.

This consideration has led the creators of the administrative reform, when they have called into being nearly 100 new communities with scattered farms in the Great Plain, breaking up the historically developed boundaries of the towns and villages. The territories of the new communities have been carved out from the territory of settlements, interspersed by scattered farms, having big agricultural areas. It was a quite frequent solution that the territory of the new community has been formed by the unification of border territories split off of more adjoining units. In the case of the market-towns with scattered farms,

more communities have been organized from the agricultural territory detached from the town.

The administrative arrangement thus carried out, had two aims:

a/ to relieve the towns and bigger villages, having the hope of urbanization, of the troubles of solving the "tanya" - /scattered farm/ -problem in order that they should be able to concentrate their attention and force to the development of the closed settlement, and

b/ offering them administrative independence to enable the territories with scattered farms to solve their own problems, which would be pushed into the background in the frame of a bigger unit, and with establishment of villages of the new communities to speed up liquidation of the scattered farms.

The experience of the past quarter of a century proves that the process of liquidation of scattered farms, even in spite of significant results has not been so rapid as it had been supposed at the beginning of the social-economic transformation. The function of production of scattered farms has not ceased completely to exist even after the socialist reorganization of agriculture. By means of household farming, from working place it became secondary working place, which also strongly attrached the inhabitants to their dwelling places of scattered farm. But if the scattered farms functioned only as dwelling places, they could not even be liquidated at the imagined pace. Even beside the really quick economic development of the country, the power of the state is not enough to liquidate more 100 thousand family

houses and rebuild them in other places, naturally meeting the requirements of today /the capacity of building material industry and building industry, the significant communal investments needs running with the establishment or enlargement of closed settlements etc/.

The above difficulties present themselves both at the new and at the old communities with scattered farms. The special problem of new communities with scattered farms is due to the fact that the population is not incited by anything to move into these villages, the majority of which has been only topographically indicated. And the communities of a small population are not able to alter this situation unaided.

In order to understand the followings, it is necessary to speak something about Hungarian population statistics. The censuses publish the distribution of population between population of downtown and that of the outskirts broken down also to the administrative fundamental units. Downtown population means strictly speaking in the case of towns the inhabitants of the towns, in the case of communities, the inhabitants of the villages. The population of outskirts in the Great Plain means, for the time being, the inhabitants of the scattered farms with some negative deviation.

At the investigations I have considered as community with scattered farms such communities, of which at least 20 % of the total population is living in the outskirts. In the course of the administrative reform /mainly in the period between 1947 and 1954/, on the territory of the six departments of the Great Plain, 89 communities with scattered farms came into being, their total population counting 229,2 thousand persons in 1960. In 1960 the number of the old communities

with scattered farms was 138, their total population 654,8 thousand persons.

Considering the categories of order, the rate of population of scattered farms and the extent of the closed villages, there are apparent differences between the old and the new communities with scattered farms /see Tables 1, 2, 3/.

The comparison of the population and settlement development of the old and new communities shows that between 1960 and 1970 the total population has decreased in both groups /with 11,4 resp. 7,3/, and so has the number of population living in scattered farms as well /with 24,9 resp. 27,5 %/. This decrease, in the case of the old communities with scattered farms has resulted in the fact that in 1970 only 30,3 % of their total population lived in scattered farms, the rate of population of scattered farms goes beyond 50 % only in 32 communities, and at the same time 42 communitites have ceased to exist as community with scattered farms, for the rate of their outskirts does not reach 20 %. At the same time, 64,1 % of the total population of new communities with scattered farms is still living in scattered farms. In 73,5 % of the communities the rate of outskirts population surpasses 50 %, in fact, in one third of the communities, more than three forth of the population is living in scattered farms, and only 6 communities have got out of the category "community with scattered farms". Examining the question from the point of view of village development, in the old communities with scattered farms the speed of increase of downtown population is slower /5,6 %/ than in the new ones /30,5 %/, but in absolute numbers this means that during ten years, into the old communities with scattered farms still with 5,5 thousands more inhabitants have moved than into the new villages.

The decrease in number of population of the new communities with scattered farms can only slightly be put to the credit of the formation of new villages. It rather proves that in new communities with scattered farms as in agricultural settlements, the general tendency of our age also comes across: the decrease of agricultural population together with the decrease of total population. The settlement system of scattered farmsteads has rather an opposite effect as compared to the general tendency, it weakens the intensity of decrease where household farming is profitable. And it is valid in an increased degree relating to the new communities with scattered farms.

Nevertheless, where the process of liquidation of scattered farms has started, the moving in has not taken place, for the most part, to the new village, but

a/ with carrying on agricultural occupation, to some nearby infrastructurally more developed settlement, generally from which the territory of the new community had been cut out,

b/ with giving up agricultural occupation, to any distant industrial or industrializing settlement of the country.

The classification of the new communities with scattered farms, according to settlement development, is possible by the help of categories arising from the combinations of numerical changes in total, downtown and outskirts population.

Theoretically the combinations may produce 10 categories. The treated material shows that the new communities with scattered farms of the Great Plain can be included in six cate-

gories. With the purpose of comparison, on the basis of the same principles, we have done the elaboration also with regard to the old communities with scattered farms /see Table 4/.

It affords opportunity to interesting conclusions, if we compare the categories of order of the communities, the extent of the villages, and the rate and number of population living in scattered farms to the categories of settlement development. Unfortunately, for the lack of time, I can only show you their elaborated tables.

It depends on an extremely lot of components of settlement development, which of the tendencies predominates in a given new community with scattered farms. The most important of them are:

a/ what has been the settlement character of the new community at the time of establishment /the place of the village has been indicated only theoretically; the new community has already had a formerly developed village core; a developed village and its neighbouring scattered farms have also administratively separated from another settlement/,

b/ some conomic factors, first of all: the types of large-scale farms on the territory, their level of development /profitability/ and as a function of this, their participation in the concentration of population of the scattered farms /housing estates of state farms, housing scheme of co-operative farms etc./.

Conclusions reached from the investigations until now: The establishment of new communities with scattered farms has not led in many instances to the intended result. The question ought to be examined, whether under the present circumstances it is necessary to insist on the establishment of a new village in communities of less than 2000 inhabitants, if it has not developed till now. In the case of the new communities with scattered farms of more than 2000 inhabitants, which are under a handicap in developing villages, it is important to reveal the factors checking village development and to judge one by on the future of these communities.

Table 1/a 1960

Total population/head	n e w		o l d	
	communities with scattered farms			
	number	%	number	%
under 2000	36	40,5	27	19,6
2000 - 5.000	47	52,8	68	49,3
5000 - 10.000	6	6,7	30	21,7
over 10.000	-	-	13	9,4
	89	100,0	138	100,0

Table 1/b 1970

Total population/head	n e w		o l d	
	communities with scattered farms			
	number	%	number	%
under - 2000	41	49,4	27	28,1
2000 - 5.000	38	45,8	45	46,8
5000 - 10.000	4	4,8	18	18,9
over - 10.000	-	-	6	6,2
	83	100,0	96	100,0

Table 2/a 1960

Population living outside the closed settlement of the community in %	n e w		o l d	
	communities with scattered farms			
	number	%	number	%
20 - 35	11	12,4	75	54,3
35 - 50	5	5,6	20	14,5
50 - 75	24	27,0	27	19,6
75 - 90	27	30,3	11	8,0
90 - 100	22	24,7	5	3,6
	89	100,0	138	100,0

Table 2/b 1970

Population living outside the closed settlement of the community in %	n e w		o l d	
	communities with scattered farms			
	number	%	number	%
20 - 35	8	9,6	45	46,9
35 - 50	14	16,9	19	19,8
50 - 75	30	36,1	20	20,8
75 - 90	21	25,3	10	10,4
90 - 100	10	12,1	2	2,1
	83	100,0	96	100,0

Table 3/a 1960

Population living in the closed settlement of the community	n e w		o l d	
	communities with scattered farms			
	number	%	number	%
under 1.000	71	79,8	31	22,4
1000 - 2.000	16	18,0	37	26,8
2000 - 3.000	1	1,1	23	16,7
3000 - 5.000	1	1,1	21	15,2
5000 - 10.000	-	-	23	16,7
over 10.000	-	-	3	2,2
	89	100,0	138	100,0

Table 3/b 1970

Population living in te closed settlement of the community	n e w		o l d	
	communities with scattered farms			
	number	%	number	%
under 1.000	64	77,1	29	30,2
1000 - 2.000	14	16,9	25	26,0
2000 - 3.000	3	3,6	16	16,7
3000 - 5.000	2	2,4	13	13,6
5000 - 10.000	-	-	12	12,5
over 10.000	-	-	1	1,0
	83	100,0	96	100,0

Table 4.

Sign of number	population			n e w		o l d	
	total	living in the closed settlement of the commuty	living outside the closed settlement of the commuty	communities with scattered farms			
				number	%	number	%
1.	-	+	-	67	75,3	87	63,0
2.	+	+	-	8	9,1	9	6,5
3.	+	+	+	1	1,1	-	-
4.	-	-	-	9	10,1	36	26,1
5.	+	-	+	2	2,2	4	2,9
6.	-	-	+	2	2,2	2	1,5
/+/ increase; /-/ decrease				89	100,0	138	100,0

EINIGE ASPEKTE ÜBER DIE HISTORISCHE ENTWICKLUNG DER BODENAUSNÜTZUNG IN BÖHMEN

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Die Erkennung der Änderungen auf der Erdoberfläche und ihre Erforschungen kann die Geographie auf verschiedenen Wegen erreichen, von welchen das Studium der historischen Entwicklung der Ausnützung des Bodenfondes den Vorzug eines gewissen vielseitigen Zutrittes aufweist. Diese Methode ist umso wertvoller, als eine Reihe von Indikatoren der Erdoberflächenentwicklung in einem verhältnismässig umfangreichen Gebiete auf gleiche Weise und oft eine ganze Reihe von Jahren in die Vergangenheit zurück verfolgt werden kann.

An anderer Stelle /POKORNY 1970/b/ habe ich versucht die Problematik dieser Frage in den tschechischen Ländern zu skizzieren. Ich wies darauf hin, dass man unter Bodenfond eine Zusammenfassung aller Flächenkomponenten der Erdoberfläche in ihrem Verhältnis zur ökonomischen und gesellschaftlichen Ausnützung durch den Menschen versteht, dass jedoch in Einzelheiten bedeutende Unterschiede darin bestehen, was man als einzelne Sorten oder Bodenkulturen bezeichnen kann. Der Bodenfond als Zusammenfassung aller Sorten resp. Kulturen, stellt ein limitiertes Ausmass vor. Ich habe auch angedeutet, dass man das Interesse des Menschen für den Boden als Grundlage für seine

Ernährung uralt ist. Zur Zeit, der bereits konstituierten Gesellschaftsorganisation wurden auch Steuern nach dem Ausmass und der Qualität des Bodens vermessen. Diesem Umstande können wir auch dafür danken, dass sich Aufzeichnungen über den Bodenbesitz und in denselben eine gewisse Gliederung des Bodenfondes bis in unsere Zeit erhalten haben. Die Bodenbeschreibungen, die auch wertvolle Daten über ihre Zweckmässige Gliederung enthalten, sind allerdings in Bruchteilen schon vom Mittelalter her bekannt, ermöglichen aber keine genauere numerische Vergleiche mit dem späteren Zustande. Die Grundkataster in den Böhmischen Ländern seit der zweiten Hälfte des 17.Jahrhundertes haben den Charakter umfangreicher Elaborate. Seit dieser Zeit wurden einige derselben in verschiedenen Zeitschichten bearbeitet. Das Elaborat des Stabilen Katasters aus der ersten Hälfte des 19. Jahrhunders ist in seiner Tiefe und seinem Umfange ganz hervorragend und haben wir dasselbe auch als Grundlage bei unserer Aufgabe, deren Zweck ein Vergleich der Bodenausnützung jener Zeit mit dem heutigen Zustande ist, verwendet.

Von dem ursprünglichen Zwecke der Grundkataster - nämlich Unterlagen für die Grundsteuervorschreibung zu gewinnen - ist die Forschung des Bodenfondes bei uns in gegenwärtiger Zeit zu einem qualitativ höheren Ziele übergegangen: vor allem ein womöglich genaues Bild vom Zustande und der Entwicklung des landwirtschaftlichen Bodens zu gewinnen. In einigen unserer Kreise hat sich nämlich die wirklich schreckliche Abnahme des landwirtschaftlichen Bodens diesen Vorgang erzwungen. Es wurde festgestellt /Statistisches Jahrbuch des Bodenfondes in der CSSR 1970/, dass in der CSSR in einem einzigen Jahre vom 1. Jänner 1969 bis zum 1. Jänner 1970 der landwirtschaftliche Boden um 13.679 Hektar gesunken ist /davon in der tschechischen socia-

listischen Republik /CSR/ um 9.606 Hektar /d.i. 0,19 %/ /CSR 0,21 %/ landwirtschaftlicher Boden, und 14.838 Hektar /CSR 7.790 Hektar d.i. 0,30 %/ in der CSR 0,23 %/ Ackerboden. Soweit es sich um Ackerborden handelt, ist hiemit nicht gesagt, ob auf seine Kosten eine andere landwirtschaftliche Kultur resp. Waldboden oder nicht landwirtschaftlicher Boden angewachsen ist. Infolge dieser ständigen Abnahme des Ausmasses des Landwirtschafts- und Ackerbodens erreichte der Anteil auf einen Bewohner der CSSR zum 1. Jänner 1970 bloss 49,17 Ar Landwirtschafts- und davon 34,69 Ar Ackerbodens. Noch im Jahre 1937 macht dies im ersten Falle 12,5 % und im zweiten 15,0 %. In diesen Ziffern zeigt sich schon sehr deutlich der Eingriff in die gesamte Ernährungsgrundlage der Bevölkerung unseres Staates.

Den qualitativ höchsten Grad in der Entwicklung der Erkennung des Bodenfondes bildet sein Studium zum Schutz der Landschaft und Bildung des Lebensmilieus. Diesen Grad hat in seiner endlichen Formulation auch unsere Aufgabe im Sinne, deren Gegenstand zunächst das Gebiet des Nordböhmischen Braunkohlenreviers umfasst und später sukzessiv weitere Gegenden unseres Landes als Forschungsgegenstand ergreifen soll.

Erst auf Grund sorgsamer Feststellung des wirklichen Zustandes und der Richtung der bisherigen Entwicklung ist es möglich wirksame Vorsorge zum Schutz des landwirtschaftlichen Bodens, sowie zum Vorteil der optimalen Entwicklung der Landwirtschaft und des Lebensmilieus zu Treffen. Es wurde auch schon festgestellt, dass die heutige Nomenklatur der Forschung über den Bodenfond dem Zwecke, der verfolgt werden soll, nicht voll entspricht. Die Gliederung des Bodenfondes in der Richtung der Indikatoren, die auf den Zweck der Feststellung des landwirtschaftlichen Ausmasses abzielen, nicht vollkommen zweckentsprechend. Hiemit will ich nicht behaupten, dass keine andere auf anderen Wegen gewonnene Daten

zur Verfügung stehen. Die amtlichen Nachforschungen über den Bodenfond im Rahmen der Statistik in der CSSR werden heute auf dem Gebiete des Landwirtschafts-, Wald- und nichtlandwirtschaftlichen Bodens vorgenommen. Ald Landwirtschafsboden wird festgestellt: Ackerboden, Hopfengärten, Weingärten, Gärten, Obstgärten, Wiesen und Weiden. Als nichtslandwirtschaftlicher Boden gilt: Teiche, /Bäche/ mit Fischzucht, die übrigen Wasserflächen, verbaute Flächen und Höfe, übrige Flächen. Der Waldboden ist ganz einseitig. Sollte die Forschung voll ihrem Zwecke dienen, müsste sie ein grösseres Sortiment von Daten des Bodenausmasses, welches der Industrie, dem Verkehr, Handel, Gesundheitspflege, Sport, Kultur usw. gewidmet ist, ausweisen. So wäre es möglich, eine weit begrenztere Reihe von statistischen Daten, sowie ihrer topographischer Qualität zu gewinnen als bisher.

Das erwähnte Nordböhmische Braunkohlenrevier, welches an erster Stelle Gegenstand unseres, sowie auch des ausländischen Interesses ist, umfasst vier Kreise des Nordböhmischen Bezirkes an der Grenze der Deutschen demokratischen Republik: Usti nad Labem /Aussig an der Elbe/, Teplice /Teplitz/, Most /Brüx/ und Chomutov /Komotau/. Von der Industrie-revolution, noch inmitten des 19. Jahrhunderts, gehörte das Flussbecken des Bilin zu den landwirtschaftlich produktivsten Gebieten von Böhmen. Es handelt sich um eine Gegend, die Belege über die älteste Phase der landwirtschaftlichen Siedlung vorweisen kann. Grosse Strukturänderungen, die diese Gegend im Laufe von mehr als 100 Janren durchmachte, brachte uns zum Entschlusse zu demonstrieren, wie sich in dieser Epoche die Bodenausnützung veränderte.

Für die numerische und kartographische Bearbeitung der Daten, die zum Jahre 1845 und zum Jahre 1970 festgestellt wurden, musste allerdings Rücksicht auf die Gebeitsänderungen genommen

werden, die vom 19. Jahrhundert an bis zum heutigen Tage erfolgten. Mit Rücksicht darauf, dass die erwähnten Grundlagen uns die Möglichkeit boten, die einzelnen Angaben über das Ausmass der einzelnen Bodensorten bis in die kleinsten Verwaltungseinheiten zu verfolgen und das waren eben die Katastralgebiete, konnten wir uns nicht nur mit den Aenderungen der Grenzen bloss im Niveau der Bezirke und Kreise befriedigen. Es war daher notwendig für die ganze Zwischenzeit vom Jahre 1845 bis zum Jahre 1970 die Grenzänderungen aller Katastralgemeinden, die sich im Gebiete des Nordböhmischen Braunkohlenreviers befinden, festzustellen. Soweit es sich um die Arbeitsmethodik handelt, möchte ich auf einen anderen Artikel /POKORNY 1970a/ hinweisen. Zur Andeutung der Methode genügt es das einfache Modell zu erwähnen: Die Grenzänderungen zwischen zwei benachbarten Katastralgebieten führt uns dazu, dass die numerischen Werte jedes von ihnen zur Zeit, als sie noch selbständig waren, als auch für die Zeit nach ihrer Vereinigung, bewertet wurden /Vergleiche POKORNY 1969/. Wenn wir es in der Geographie bevorzugen relevante Werte auf möglichst kleinsten Flächen zu veranschaulichen, dann haben Grenzänderungen in der Vergleichsmethode die Funktion eines negativen Factors. Nötigerweise führen sie dazu für den Vergleich Gebietseinheiten zu bilden.

Während man an der Bildung der Vergleichs-Gebietseinheiten noch arbeitet /wir nennen sie Vereinigte Katastralgebiete/, war es möglich zum Vergleich schon ein kartogrammatisches Bild vom Stande der Bodenausnützung im Nordböhmischen Braunkohlenreviere fü einige Indikatoren einerseits für das Jahr 1845, andererseits - in der gleichen Methode und dem gleichen Stufengrad - für das Jahr 1970, zu bieten.

Mit Rücksicht darauf, dass hier als Grundlage die Gebiets-Katastraleinheiten der betreffenden Zeit benützt wurden, hat der kartographische Vergleich beider Zustände blos eine visuale Wirkung. Die in Vorbereitung stehende Vergleichskarte, an der soeben gearbeitet wird, setzt eine Lösung der vereinigten Katastralgebiete voraus. Im Gebiete des Nordböhmischen Braunkohlenrevieres kam es zu grösseren Grenzänderungen der Katastralgebiete erst in den letzten Jahren.

In den beigeschlossenen 3 Tabellen legen wir einige numerische Werte vor, die aus dem Vergleiche der Bodenausnützung auf dem Gebiete des Nordböhmischen Braunkohlenrevieres im Jahre 1845 und 1970 hervorgehen. Aus dem Vergleiche des Gesamtausmasses der erwähnten Jahre geht hervor, dass es nicht gelungen ist, einige Differenzen im Ausmasse zu beseitigen. Auch wenn die Differenzen im ganzen bedeutende Flächen bilden, haben sie keine prinzipielle Bedeutung bei dem Vergleiche in so grossem Umfange wie es bei dem Nordböhmischen Braunkohlenreviere der Fall ist. Den grössten Anteil daran trägt vorläufig die approximative Lösung des Grenzgebietes Chomutov-Karlovy-Vary /Komotau-Karls-bad/. Sonst ist aus den Tabellen das eigentliche Wesen des Vergleiches ersichtlich, zu dem wir wegen Raummangel keine besondere Analyse beifügen. Allerdings ist es notwendig hier noch einige methodische Bemerkungen beizuschliessen. Vor allem wird es notwendig sein mit Rücksicht auf die Disharmonie einiger Indikatoren aus dem Jahre 1845 und 1970 den Vergleich nur bei solchen Komponenten vorzunehmen, die sachlich identisch sind. Es ist auch überflüssig sich darüber zu äussern, dass der Waldboden keinen Indikator für den wirklichen Stand der Waldkultur bietet. Als ernst müssen wir die Tatsache betrachten, dass mit dem Gesetz Nr. 93/1966 eine zeitweise für Tagbau bestimmte Bodenkategorie

eingeführt wurde. Solche Flächen sind weiterhin in ihren ursprünglichen Kulturen bezeichnet, obwohl sie ihrem früheren Zwecke nicht dienen. Bei unserer Aufgabe werden wir jedoch trachten, soweit hiefür zufriedenstellende Grundlagen vorhanden sind, solche Bodenflächen nach ihrem Ausmasse und wirklicher gegenwärtiger Ausnützung einzureihen.

Nur als schliessende Bemerkung möchte ich noch beifügen, dass bei Bearbeitung der erwähnten statistischen Reihenwerte auch extreme Kulturwerte festgestellt wurden, die Gegenstand unserer Forschung bildeten. In gegenwärtiger Zeit arbeiten wir an ihrer Interpretation, soweit es sich um ihre historischen und Entwicklungszusammenhänge handelt.

Tab. 1.

Ackerboden 1845 - 1970 im Nordböhmischen Braunkohlenreviere

Kreisgebiet 1970	Katastral-Gesamt-Ausmass /Hektar/		Ackerboden-ausmass 1845 /Hektar/	%. d. Geusamtausmasses 1845	Ackerboden ausmáss 1970 /Hektar/	% d.Gesamtausmasses 1970	Differenz der Jahre 1845 u. 1970.	
	1845	1970					± Hektar	± %
U s t i nad Labem	40.296	40.434	18.998	49,9	10.765	26,7	-9.233	-23,2
T e p l i c e v Cech.	47.393	46.917	22.406	47,5	13.015	27,7	-9.391	-19,6
M o s t	46.573	46.709	23.835	51,2	12.990	27,8	-10.855	-23.4
C h o m u t o v	92.589	93.562	45.639	49,2	34.202	36,6	-11.437	-12,6
Nordböhmisches Braunkohlenrevier	225.931	227.522	121.899	49,3	70.972	31,2	-40.927	-18,1

Tab. II.

Weinberge, Wiesen und Weiden 1845 und 1970 im Nordböhmischen Braunkohlenrevier

Bebiet des Nordböhmischen Braunkohlenreviers 1970	Ausmass Hektar 1845	% des Gesamtausmasses	Ausmass Hektar 1970	% des Gesamtausmasses	Differenz der Jahre 1845 u. 1970 ± Hektar	Differenz der Jahre 1845 u. 1970 ± %
W e i n b e r g e	174	0,1	6	-	- 168	- 0,1
W i e s e n	17.687	7,8	15.071	6,6	- 2.616	- 1,2
W e i d e n	13.880	6,1	12.601	5,5	- 1.279	- 0,6

Tab. III.

Landwirtschafts- Wald - und nichtlandwirtschaftlicher Boden 1845 und 1970 im Nordböhmischen Braunkohlenrevier.

Gebiet des Nordböhmischen Braunkohlenreviers 1970	Ausmass Hektar 1845	% des Gesamtausmasses 1845	Ausmass Hektar 1970	% des Gesamtausmasses 1845	Differenzen der Jahre 1845 und 1970	
					± Hektar	± %
Landwirtschaftlicher Boden	145.414	64,0	104.523	45,9	-40.691	- 19,1
Waldboden	71.203	31,4	76.307	33,6	+ 5.184	+ 2,2
Nichtlandwirtschaftlicher Boden	10.394	4,5	46.712	20,5	+36.378	+ 16,0

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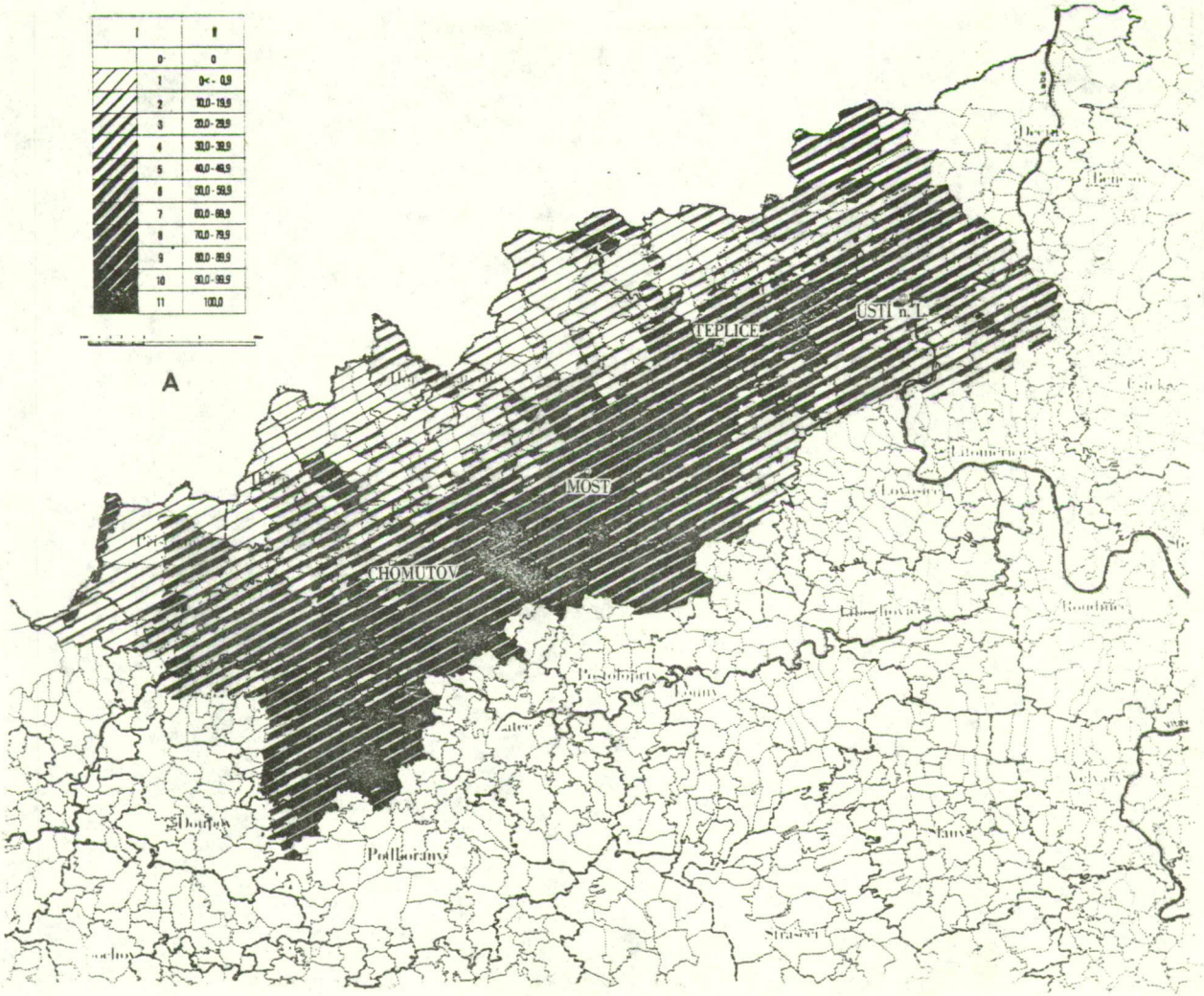
6. Beilage B.: Ackerboden im Gebiets des Nordböhmischen Braunkohlenreviers im Jahre 1970. Zu den Erklärungen: I - Stufe, II - Kartographische Darstellung der perzentuellen Spannung aus dem Gesamtausmasse des Katasters.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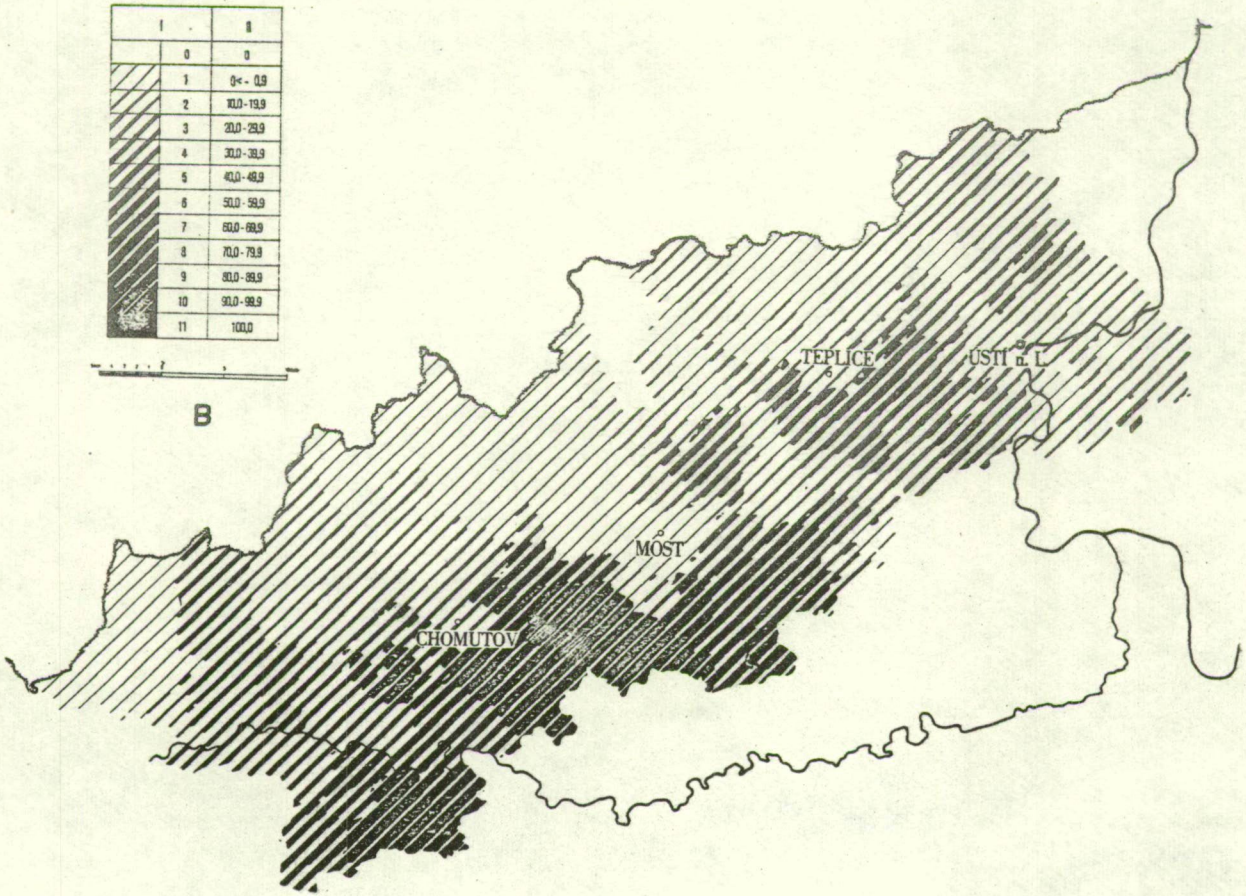
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TYPOLOGY OF FARMS IN CENTRAL FINLAND

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PURPOSE OF STUDY

Agriculture in any district is the result of complicated influences deriving from nature and humanity. Each district and each individual farm is inuque, and the difficulties of comparing regional agriculture at international level are therefore understandable. A worldwide classification of agriculture is an aim which meets with general approval, however, and the Commision on Agricultural Typology of the I.G.U. has been working to that end since 1964.

As the President of the Commission noted in 1964, "a number of quantitative methods elaborated by mathematicians and non-mathematicians are in use in various disciplines to measure similarities or average differences between various phenomena... None of them, however, have been checked in the typological investigations of agriculture." /Kostrowicki 1964, p. 166/. This challenge has since been accepted by several investigators. Some geographers have found factor analytic techniques a useful aid to problem solving in agricultural studies /Henshall 1966; Munton 1970; Munton and Norris 1969; Aitchison 1970; Momsen 1970/. In the latest studies results have been promising: "The

factor analysis methodology provides a simple framework for an understanding of the internal variation between small farms within each territory." /Momsen 1970, p. 8./ and "principal component analysis has simplified and redefined the complex data matrices required to describe large numbers of farm systems, and it is possible to group the farms as a result ... Most important of all, by grouping the farm systems in terms in terms of their similarities of function, principal component analysis has provided a valuable basis for their future investigation." /Munton 1970, p. 11-13/.

The purpose of the present study is to examine the suitability of multivariate analysis for the typology of farms in central Finland. The complete study has been published in other journal[15/]. In this paper only the general features of the methods and study results are presented.

MATERIAL

The study material consists of two sample districts in central Finland, one /Kalmari/ containing 172 and the other /Häkkilä/ 146 farms, each with a field area of at least one hectare. The farming census afforded information on many variables illustrating basic features of agriculture. The agricultural census questionnaire contained 136 question groups, some of which included several sub-questions.

15/ Kalevi Rikkinen: Typology of farms in central Finland. Fennia 106. 44 p. Helsinki 1971.

TYPOLOGY OF FARMS ON THE BASIS OF INDIVIDUAL VARIABLES

Typologically the farms are divided into two main types with regard to separate variables. First there exists a continuum- type divison which appears with many central variables describing farms. To be regarded as a second main type is the dichotomous distribution which occurs, for instance, in variables describing the cultivation of most crops. Variations of these main types also naturally occur.

From the typological standpoint the continuum-type division is difficult. Dichotomous division, on the other hand, is in one sense easy, as there are then two distinct classes. On the other hand, the placing of farms in tow classes only may be too rough a division. In any case the drawing of class boundaries and the formation of groups will be highly subjective if individual variables alone are used for division. For this reason the multivariable method was used in the present study.

CORRELATION ANALYSIS

By calculation of correlation coefficients between different variables the formation of homogeneous groups may be attempted /Hagood 1943; Hagood and Price 1952 et. al./. If the interdependences of variables are discovered, a "linkage tree" of variables may be composed.

From the material available 44 variables were formed for correlation analysis. Variables were formed by including at least one variable from each section of the questionnaire which showed a characteristic as well as possible.

Correlation coefficients enable homogeneous groups to be composed with the aid of many different principles. Haggett /1966, p 283-286/ presents there basic concepts: 1/ basic pairs; 2/ p-clusters; 3/ F-groups. As a means of graphic illustration variables in correlation with each other at a different level of significance have been connected by different lines /e.g. op. cit. p. 284-285/.

In the present study correlation analysis was used in an attempt to disclose complete sets of characteristics by changing the order of variables in the correlation matrix in various ways. This was perhaps best achieved by grouping the variables according to the number of other variables with which they are statistically in highly significant positive correlation. The appended matrix /Fig. 1/ were made with reference to Kalmari farms in observance of this principle. First in order is the field area of farms, which is in very strong positive correlation with 25 other variables. Last on the list are variables not in very strong positive correlation with any other variable. Between these two groups is a third consisting of characteristics which are not in very strong statistical core relation with any other variables, or with very few. In this case, the groups of characteristics disclosed by correlation analysis are very inexact. The correlation matrix, however, forms an important basis for the study of farm typology by the multivariate method.

FACTOR ANALYSIS AND VARIMAX ROTATION

By means of correlation coefficients conclusions can be drawn as a rule only with regard to the interdependences of individual characteristics. A better notion of the connections between several different variables is afforded by factor analysis. This method enables variables to be grouped in collections relatively independent of each other /Harman 1960; Berry 1961; Steiner 1965/.

In the present study not all variables were chosen for factor analysis which had been subjected to correlation analysis, but on the basis of the latter the number of variables was restricted to 25. In the elimination process care was taken above all that variables in so-called technical correlation were not included. The following were selected for factor analysis:

1/ Field area
2/ Forest area
3/ Presence of otherwise of milking machine
4/ Cows, number
5/ Technical equipment
6/ Presence or otherwise of tractor
7/ Is barley cultivated?
8/ Is there a car?
9/ Is there pasturage?
10/ Are oats cultivated?
11/ Are there horses?
12/ Has the farmed received agricultural training?
13/ Employees, number
14/ Are potatoes or root crops cultivated?
15/ Is hay grown?

16/ Are there pigs?
17/ Is wheat cultivated?
18/ Is there a bull?
19/ Is there a successor in the ownership?
20/ Is rye cultivated?
21/ Working days of owner outside farm.
22/ Are husband and wife both living?
23/ Is the main profession other than farming?
24/ Age of farmer
25/ Is there poultry?

In the present study the correlation matrix was factorized by the principal axis method. It is a natural attribute of this method to include in the first factor as many as possible of the covariance of variables. However, the eigenvalues of the following factors still were high. This indicates that we are not concerned with a one-dimensional body of variables. Thus there was good reason for rotation.

The object of rotation is to remove general factors by reversing factor axes and to obtain the interrelations of variables in a simple, interpretable from. An aim of this kind is in conformity with the attempt to compose a typology of farms. In the present work Varimax rotation was used.

Rotation with 3-5 factors was tried here, and the four factor solution proved most successful. A clear interpretation for four factors was to be found, and the so-called simple structure requirement was realized in the solution. The factors can be interpreted as follows:

1/ This factor gives high loadings to variables indicating farm area, number of cows and technical standard of

machinery and equipment. The factor thus indicates size and wealth.

2/ The factor gives fairly high loadings to many variables indicating grain and fodder crops, also to the variable indicating presence of horses. It may be called the factor of traditionalism.

3/ This factor gives high loadings to advanced age but continued ability to work their own land /of farmers/. It may be called the pensionary factor.

4/ This factor gives high loads to journeys to work outside the farm owned /also, fields are often not in fully effective use/. It may be called the work elsewhere factor.

These four factors may also be used as a basis of classification for individual farms.

FARM TYPOLOGY ON BASIS OF FACTOR SCORES

The proportion of individual farms to different factors was obtained by calculating factor scores for each farm. Factor scores were calculated by taking the average score for each factor as 500 and the deviation as 100. Thus the scores are standardized and the division approximates in theory to the normal, which facilitates further treatment.

On the basis of the above interpretation of factors the farms which receive high scores from the first two factors are

full-time farms, whose owners gain their principal livelihood from agriculture. Those which receive high scores from the third and fourth factors are mainly part-time farms.

Two methods will now be presented which enable farms to be classified more precisely, taking factor scores as a starting point.

Standard deviation as basis for classification

In the appendeddiagram /Fig. 2/ the first two factor scores of Kalmari in order of rank are taken as examples. It will be seen that the factor scores in general change as continuum types. For this reason it is difficult to define the boundaries between different farm types.

One possibility is to give primary attention to the dominant, factor, i.e. the factor whose score on the farm is highest. Farms can then be classified by division into four groups. In practice, however, the greatest and second greatest factor scores may be almost equal. In such cases the dominant factor gives a poor notion of the farm.

A method of forming class boundaries is to use standard deviation as a criterion. This technique has been used, for instance, by Nelson /1955/ in classifying American cities on the basis of their occupational structure. According to Nelson's classification a city can be specialized in more than one factor and to varying degrees. If the average factor score is taken as 500 and the standard deviation as 100, farms which are one, two or more standard deviations away from the average are easy to assemble /cf. Fig. 2/.

Factor scores may deviate from the average both upwards and downwards. From the classification standpoint, what a farm contains is perhaps more significant than what it lacks. A s a first step in farm classification it may therefore be best to consider those whose standard deviation is one or more upwards. We now present a simple classification in which scores below 600 are marked with the symbol 0, and scores of 600 or over are marked +. In this way each farm receives a foursymbol index. For instance, the index 0 + 00 means that the farm's scores by factors I, III and IV are below 600, but by factor II above 600, i.e. at least one standard deviation away from the average.

Table 1.
Farm classification based on standard deviations upwards from average, at Kalmari.

Type	Number of farms
0000	103
+000	23
0+00	7
00+0	8
000+	21
00++	7
+0+0	1
+00+	1
++0+	1
	172

Type 0000 is clearly the most common both at Kalmari and Häkkilä /Table 1/. It can naturally be divided into subtypes in accordance with the factor by which scores may have a standard deviation of one or more downwards /below 400/.

In a typology of farms obtained entirely in this manner there is emphasis on some special characteristic. In other words, farms belong to the same type because of features they share and which differentiate them from others. On the other hand, farms belonging to the same type on the strength of many other characteristics may differ markedly.

Grouping analysis

By the former method class boundaries were drawn to one standard deviation. This subjective method may be avoided by the use of grouping analysis. There are several grouping methods /Harvey 1969, p. 345-346/. The general principle is that groups should be formed in such a way that their within-groups variance is as small as possible. The present study employed the method evolved at the Computing Centre of Helsinki University /HYLPS/GA, version H/.

In analysis the number of groups desired must first be estimated and starting values shosen. Grouping of observations is then tested. An observation is considered to belog to the group in which it differs least from the group average. In the solution which is mathematically best the total withingroups distance /D/ is smallest. Naturally, the higher the grade of homogeneity demanded within the group, the greater the number of groups which must be chosen.

In grouping, therefore, the observation values chosen as starting values in group formation are a matter of central importance. There are many possible combinations, and the mathematically best solution is not necessarily best in a typological sense. For this reason several starting values and group numbers were experimented with in the present study.

Factor scores for farms by four different factors are taken as a starting point for grouping in this study. No factor scores are weighted. Here is the essential difference between this and the standard deviation method shown earlier, which laid stress on special differentiating characteristics.

Grouping was performed in 4-7 groups, and three different starting values were used used for each group number. As a subject for closer examination we shall now take a grouping of farms in four groups only.

From the typologycal standpoint it is essential to compare how different grouping cause farms to be placed in different groups. Farms whose factor scores by all factors are almost the same are naturally placed often in the same group. Their opposites are "solitary" farms, which are associated with different farms in different groupings. Table 10 shows by three figures to which group a farm belongs according to different groupings. The first figure of the distinguishing number signifies the group in order of size to which a farm belongs according to Grouping I, and the second and third figures the group to which it belongs according to Groupings II and III. Thus, for instance, the distinguishing number 124 signifies a farm which according to Grouping I belongs to the first or biggest group, but according to Grouping III to the fourth or smallest group.

The interrelation of farm types is illustrated in Fig. 3. The size of the symbols shows the number of farms belonging to each type. The types resembling each other most are those whose farms belong to the same group according to two groupings /e.g. 111 and 131/. Such cases are connected by a line in Fig. 3. This provides a good notion of the similarity of various farm types and also reasons for the possible combination of types. As an example, farm types in Fig. 3. are also divided into combined types A-C.

CONCLUDING REMARKS

This study has been purely taxonomical in the sense that the central problem has been the typology of farms, with little attention paid to the explanation of causal relationships between the groups obtained. Also, no clear criteria were adopted in advance for the merits of the grouping, nor was the number of groups pre-established. The interpretability of groups was considered the most important criterion, indefinite though it is. The sole purpose was to arrive at a reasonably objective classification of farms by the multivariate method.

How was the criterion of objectivity fulfilled? The multivariable methods employed are in themselves technically objective. But the methods yield results in accordance with the variables, which are included in the analysis. "The results of the factor analysis are only as good as the choice of the original variables." /Momsen 1970, p. 3/. And indeed, the researcher's sebjective notions were revealed by the choice of variables in the present sutdy.

Because no clear criteria were adopted for the classification of farms, we may note what has generally been noted with regard to classification. "It is generally agreed by logicians that there can be many valid classifications of a given universe of individuals... The property chosen as the differentiating characteristic depends primarily upon the purpose of the classifications." /Grigg 1965, p. 470./. Thus are "good". Such a question might be answered, however, when some practical requirement is at issue. It might be asked, for instance: What is the nature of the farms which have a successor in the ownership and possibilities of continued existence in future? The typology which reveals such farms in a group of their own to the researcher is good from the standpoint of this practical problem.

Althoughthis study deals with farm typology as a purely taxonomical problem, the classification methods employed are serviceable also for practical requirements in which criteria for the number and content of groups are precisely defined.

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F i g u r e s

Fig. 1. Correlation matrix of variables in Kalmari.

1 = positive correlation at 0,1 % level
2 = negative correlation at 0,1 % level

Fig. 2. Factor scores of farms in rank order after Factors I and II.

Fig. 3. Types of farms in Kalmari based on grouping analysis.

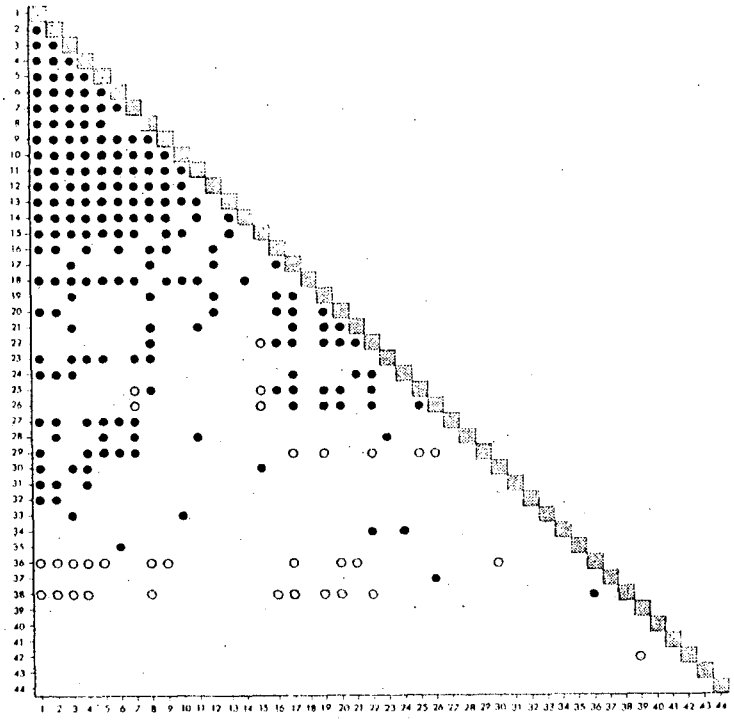

Fig. 11. Correlation matrix of variables in Kalmari.
● = positive correlation at 0.1 % level.
O = negative correlation at 0.1 % level.

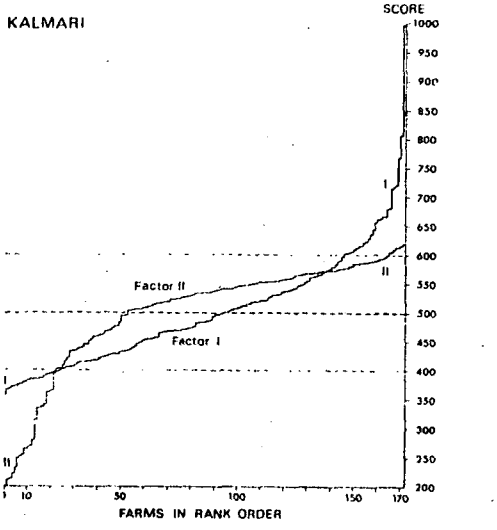

Fig. 2. Factor scores of farms in rank order after Factors I and II.

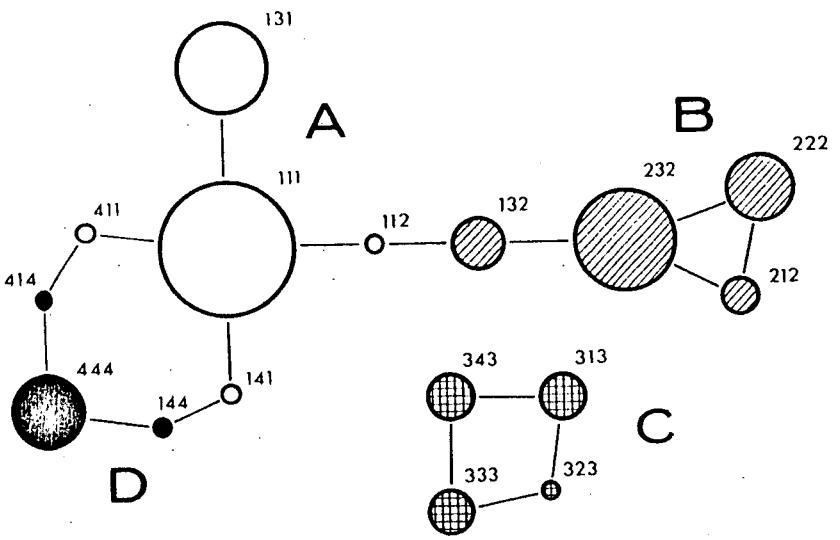

Fig. 3. Types of farms in Kalmari based on grouping analysis.

MEASUREMENT OF AGRICULTURAL PRODUCTIVITY OF THE GREAT INDIAN PLAINS

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Productivity is essentially a measure of the efficiency with which inputs are utilized in production, other things being equal. There is a substantial literature relating to methodological procedures for measuring productivity in agriculture.[1/] Professor Stamp while attemtping to measure crop productivity per unit area emphasises that areal differences in crop productivity are the result partly of natural advantages of soil and climate partly of farming efficiency Farming efficiency refers to the properties and qualities of the various inputs, the manner in which they are combined and utilized for production and effective market demands for the output. The increase in agri-

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cultural productivity is largely related to the choice of inputs and their relative quantities, the technicques and skill with which they are utilized in the production processes, and the output that they produce.

The measures of agricultural productivity which are most frequently understood are those of land productivity, and refers to the relation of a single input or a group of inputs to the total output or to a part thereof /yield per hectare, output per man hour or output per unit of capital/. The data required to measure the productivity of a single input are more likely to be available than are those require for measures of overall productivity. Besides, the aggregation of total inputs may tend to obscure the effect of changes in their composition.

The International Commission of Agricultural Typology is seized of this problem and the Chairman of the Commission Prof. Kostrowicki sent a questionnaire to over 100 scholars which embodied the following two questions:

1/ What methods of measuring intensity of agriculture should beapplied in typological studies of various orders.

2/ What methods, measures and indices should be used to define land, labour and capital productivity of agriculture in typological studies of various orders.

About fifty geographers from all over the world responded and suggested various approaches to the measurement of agricultural intensity. The Chairman of the Commission, while commenting on the different approaches, pointed out that a special study testing various methods and techniques to be used in the

studies of various scales was needed and the Commission is continuing its work on this problem.[5/]

The productivity of land, the most permanently fixed of the three conventional categories of inputs has assumed special importance with the rapid increase of population. It India where land is scarce, measures that help in increasing the output per hectare of land provide the most ready means of achieving the immediate increase in production required to keep pace with demand. As Professor Stamp has put it, in a world short of food, what matters in many perhaps most, countries is the actual amount of food produced, and making some allowance for quality, the higher the output per unit area, the greater is the efficien cy of the farmer.[4/]

Adopting the approach, the author attempted to measure the agricultural efficiency of Uttar Pradesh on the basis of arce yield of eight selected crops. The districts were placed in the order of output per acre for each crop. The places occupied by each district in respect to the total selected crops were then averaged and from these averages the ranking coefficient of agricultural efficiency of each district was obtained. If a district was at the top of every list, it would have a ranking coefficient of one, and if it were at the bottom of every list, it would have a ranking coefficient equal to the total number of districts considered.[2/] Stamp while commenting on this method points out that the aim of this technique is to measure actually the crop productivity per unit area which depends partly on the natural factors of climate and soil and partly on the management and organization of the farmer. It will be seen that in this approach insignificant acreage under certain crops which show high adsptations with regard to

physical factors in the same or in different regions may have higher yield per acre than those crops which occupy substantial acreages with relatively poor adapterability to physical conditions. The ranking coefficient on the basis of average would therefore be biased and may not present a correct picture of agricultural efficiency.

Prof. Enyedi while discussing geographical types of agriculture refers to a formula for determing an index of productivity coefficient.

$$\frac{Y}{Yn} \cdot \frac{T}{Tn}$$

Where Y = the total yield of the respective crop in the unit area
Yn = the total yield of the crop on national scale
T = total crop area of the district
Tn = total crop area on national scale

Enyedi has illustrated this formula by quoting a suitable example. Of the national crop area of 5,7 m hectares wheat is grown on 1 m hectare with a yield of 15 quintals/hectare.
Thus the yield total amounts to 15 million quintals. In one of the districts /A/, the total crop area is suppose; 50.000 hectares and that of wheat is 15.000; and the yield of wheat amounts to 23 quintals/hectare. The total yield of wheat in the district would amount to 345.000 quintals. Applying the above formula, $\frac{345.000}{15.000.000} : \frac{50.000}{5.700.000}$, the index for the district /A/ is 2,62 i.e. the area of the district is 162 % more productive for wheat than is the total crop area of the country.[1/]

The writer adopted this formula to determine the productivity coefficient index in respect of twelve food crops of India. From the productivity indes of each crop of a district the percentage of the productivity level in relation to the national scale for that crop was obtained. The percentages of all the twelve crops thus obtained were added up to indicate the food crop productivity level of that district compared to the national level. The plus figures of productivity percentages of all the districts were arranged in the descending order and medians, quartiles and octiles were worked out which resulted in eight ranks /I to VIII/. The minus figures of the productivity percentages were arranged separately in a descending order and the median was worked out which gave two ranks IX and X.[3/]

While appreciating the value of the formula in determining index of an area with reference to the national scale there are certain cases where the results obtained by the formula is influenced by the imagnitude of the area under a particular crop when the yield of the district is either the same or is less than the national yield. For example, when the yield of the district is the same as the national yield even then the district, by the computation of the formula, has a higher productivity coefficient than that of the national scale.

Example:

Yield of wheat in the district	= 15 quintals/hectares
National yield of wheat	= 15 quintals/hectares
Area of the district under wheat	= 15.000 hectares
Area under wheat at the national level	= 1.000.000 hectares
Total crop area of the district	= 50.000 hectares
Total crop area at national level	= 5,7 million hectares

Applying the formula $\frac{Y}{Yn} : \frac{T}{Tn}$

$$\frac{225.000}{15.000.000} \times \frac{5.700.000}{50.000} = 1,71$$

Productivity coefficient = 171 - 100 = + 71 %

The example shows that the district /B/ although having the same yield of wheat as the national yield is shown to be 71 % more productive which is hardly tenable.

Similarly there may be a case when the district yield is less than the national yield, but the area under that particular crop whose productivity coefficient is to be determined is more than in the instance cited by Professor Enyedi. In this case too, although the district yield is less, its productivity index would be higher than the national level.

Example:

Yield of wheat in the district = 12 quintals/hectares
Yield of wheat at the national level = 15 quintals/hectares
Area of wheat in the district = 20 hectares
Area of wheat at the national level = 1.000.000 hectares
Y = 240.000 quintals
Yn = 15.000.000 quintals
T = 50.000 hectares
Tn = 5,7 millions hectares

According to the formula the result of the productivity index of the district /C/ would be as follows:

$$\frac{240.000}{15.000.000} \times \frac{5.700.000}{50.000} = 1,82$$

Productivity coefficient = 182 - 100 = 82 %

It will be seen that althocgh the productivity of the district with regard to wheat is less than that of the national level, the formula shows that the district is 82 per cent more productive than the national level.

Taking the same example which Professor Enyedi has quoted, of only the yield of wheat per hectare is decreased /the yield of wheat in the district per hectare is taken to be less than the figure cited/. and other things remain equal, the productivity coefficient of the district again would be higher than the national level.

Example:

Yield of wheat in the district = 12 quintals/hectare
Yield of wheat at the national level = 15 quintals/hectare
Area under wheat in the district = 15.000 hectares,
Area under wheat at the national level 1.000.000 hectares
Total crop area of the district = 50.000 hectares
Total crop area at the national level = 5,7 million hectares
According to the forumla the productivity coefficient of the district with respect to wheat = $\frac{180.000}{15.000.000} \times \frac{5.700.000}{50.000} = 1,37$

Productivity coefficient = 137 - 100 = + 37 %

It will be seen from the above measurements that in a particular district although the yield hectare of a crop may be equal to the national level or even less than the national level, the productivity coefficient index with respect to that crop is higher than the national level.

The writer has made an attempt to modify the formula wherein the productivity coefficient of a particular crop may be in conformity with higher or lower yield per hectare of that crop in the district relative to the national level.

In the modified formula the summation of the total yield of all the crops in the district is divided by the total area under the crops considered in the district and the position thus obtained is examined in relation to the total yield of all the crops considered at the national level divided by the total area under those crops. The formula would read as follows:

$$\left/\frac{Yw}{t} + \frac{yr}{t} + \frac{ymi}{t} \cdots n\right/ : \left/\frac{Yw}{T} + \frac{Yr}{T} + \frac{Ymi}{T} \cdots n\right/$$

$$\text{or } \frac{y}{t} : \frac{Y}{T}$$

An attempt has been made to determine the productivity index of the Great Plains of India on the basis of the above formula.

The Great Indian Plain stretches between 22 and 33°North latitude, and 74 and 89°40' E long, and covers an area of 308,975 sq.miles or 800,245 sq.kms comprising 81 districts. It covers 26 per cent of the total area of the country but contains 40 per cent of the total population.

The Great Indian Plains are one of the largest and most densely populated alluvial plains of the world. Stretching along the foot of the Himalayas, they fan out at both ends as to include humid Bengal Basin in the east and the relative dry plain in the west. Physiographically the Great Indian Plain is divided into two sub-divisions: Northern plains and Eastern Plains.

The northern plain is divided into four units: Punjab plain, Ganga-Yamuna Doab, Rohilkhand plain and Avadh Plain.The Ganga-Yamuna Doab is by far the largest and most densely populated. Farther east to the Doab, lies the low lying Rohilkhand and the Avadh Plain.

The Eastern Plain is sub-divided into four Units: North Bihar Plain, South Bihar Plain, Assam Valley and Bengal Basin.

The Ganga-flows along the southern border of the North Bihar Plain, and receives on its left bank three of the major Himalayan rivers-Ghaghra, Gandak and Kosi, and many other minor rivers. The monotogy of the North Bihar flat landscape is somewhat relieved in the South Bihar Plain.

The Bengal Basin embraces most of the alluvial plains of West Bengal where the Ganga delta occupies the major portion of Bengal Basin.

Agriculture is the main occupation of the people of the Great Plains of India where the population consists predominently of cultivators wholly or partly dependent on cultivation.

The writer has made an attempt to determine the productivity index of the Great Plains on the basis the above mentioned formula. It will be seen from Fig. 2. that the productivity index is highest in the districts of Ganga-Yamuna Doab, namely, Muzaffarnagar, Meerut, Bulandshahr, and the districts of Bengal Basin, namely Birbhum, Burdwan, Hooghly and Calcutta. Farrukhabad and Bijnor, which are very close to the Ganga-Yamuna Doab, also enjoy the highest productivity index.

Figure 2 further shows that Punjab-Haryana Plains have productivity index of the order renaging between III and VI. The productivity index of the whole of Haryana Plain with the exception of Mahendergarh ranges between IV & VI. The productivity index of Mahendergarh is however IX Patiala and Ludhiana in the whole of Punjab and Haryana Plain have the highest productivity index, and in the context of the Great Indian Plain their index is rated of the third order, while the remaining part of the Punjab Plain has productivity index ranging between IV and VI.

The position is complex with regard to the Avadh Plains Rohilkhand Plains and the Ganga-Yamuna Doab. The productivity index of the Doab ranges between /II and V/ but in the Doab there are some districts which have the highest productivity in the Indian Plain as a whole. These districts are Muzaffarnagar and Meerut and Bulandshahr. In the Rohilkhand Plain with the exception of Bijnor and Farukhabad districts which have

the productivity index of I, the productivity index ranges between V and VI. The productivity index of the Avadh Plains, ranges between IV and VI, while productivity index of the sub-montane districts /Bahraich, Gonda, Basti and Gorakhpur/ is slightly below the national level whereas that of Basti and Bahraich is far below the national level.

The productivity index of the whole of the North and South Plain is below the national level. The districts of the North Bihar Plain generally have the lowest productivity index. The productivity index of the Assam Valley ranges between the order of V and VI, while that of the Bengal Basin ranges between III and VI. Four of the districts of the Bengal Basin, namely Birbhum, Burdwan and Hooghly, and Calcutta have the highest productivity of I.

The above study shows that the productivity index of the sub-montane districts of the Avadh Plains, and the whole of the Bihar Plains have productivity, far below the national level and should receive the first attention in the improvement of the productivity of the area from the planners. Most of the districts of the Punjab and Haryana Plains, Brahamputra Valley and the Avadh Plains have productivity index which varies from low to medium, while the productivity index of most of the districts of Ganga-Yamuna Doab ranges between high and very high.

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GEOGRAPHICAL TYPES OF AGRICULTURE AND THEIR EVOLUTION IN THE ROMANIAN SUB-CARPATHIANS BETWEEN ŞUŞIŢA-ZABRAUŢ AND BUZAU

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The presence of depressions, the great depth and width of valleys side by side with heights running over 800 m /Ráchitaşul Mare - 937 m, the China Hill - 854 m, Ráiuţul - 966 m, Bisoca - 373 m, etc/, the complex geological structure, the highly varied lithology and the frequent landslides, divide the sub-Carpathians between Şuşiţa - Zábráuţ and Buzáu into geographical units with a highly fragmented relief, which are differently turned to account as regards agriculture.

These particularities of the natural environment lead to local differences in the geographical distribution of agricultural branches and sub-branches as a consequence of the early economic development of this territory through the utilization of the natural conditions propicious to the improvement of some highly economically efficient agricultural branches /viticulture, pomiculture, husbandry, etc./.

This paper deals with the geographical types of agriculture starting with the second half of the nineteenth century up to the present-day stress being laid upon the types of culture specific to this area in certain periods of time. By type of culture we mean "the economic character of a culture or, in other words, the relationships between culture and the destination of the product" /Max Derruau, 1963, p. 189/.

The approach to the problem of the geographical types of agriculture varies in the literature in respect in to the country where such research is being conducted, the goal of such research and the general economic trend of the country in certain periods of time.

The definition and characterization of these types starts from two points of view: one based on the econimic factors /social organization, destination of the output, etc/ /P. George, 1963/ and the other one outlines the geographical type of agriculture in terms of geographical environments, these being directly connected with the economic, political and social factors which contributed to their transformation /Max Derruau, 1963/. A blend between these two viewpoints provides, in our opinion, a true definiton of the concept of geographical type of agriculture /J. Kostrowicki, 1962, 1964; Asztalos, István et al., 1966/.

Although the influence of natural conditions is not decisive, yet agriculture is much more influenced by them than any other economic branch. Therefore their major significance in defining the geographical type of agriculture from a functional viewpoint is quite obvious.

A study of older chartographic material /Chart of Southern Romania, 1864/ and bibliographies /B. Iorgulescu, 1892; Gr. Dánescu, 1896; M. Canianu and A. Candrea, 1897/ enabled us to outline some former geographical types of agriculture in this region in terms of the natural conditions, land use, structure of cultivated lands and density of animals. The other economic indicators /profits obtained, valuation of agricultural products, etc./, represented in points of their value are not comparable to present figures /Fig. 1/.

The present-day geographical types of agriculture have been delimited in space on the ground of field investigations, statistical evidences found in the Vrancea and Buzáu county departments of statistics, Gauss maps-scale 1 : 50.000, field mappings and bibliographies. On characterizing the geographical types of agriculture account has been taken of the natural conditions, land use, structure of cultivated areas, technical endowment, gross output and commodity output, manpower, etc. /Fig. 2/.

1/ Geographical Types of Agriculture in the Second Half of the Nineteenth Century.

A study of the geographical distribution of the big categories of land use on the basis of the Chart of Southern Romania /1864/ reveals that 70 per cent of the whole surface of the region was covered by forests.

As regards the distribution of the main branches of agricultural production, three types of agriculture can be depicted: raising of livestock, mixed and cultivation of vine.

Raising of livestock was the prevailing type in the inner sub-Carpathians and sub-Carpathian depressions in the second half of the nineteenth century. Because of the natural conditions of the region viz, a rather cold and humid climate, brown, brown-yellow and podzol forest soils and a rough relief, the main agricultural grounds consisted in pastures and hayfield which covered smaller or larger surfaces in-between the forests. The rather few agricultural grounds and orchards were located on the mild-dipping slopes. Toward the end of the nineteenth century as a consequence of massive forest clearing, natural pastures and hayfieldswere extended so that by 1890 they covered 62,2 per cent of the agricultural grounds. In this way, animal breeding developed. Ovines were grown mostly for their milk and wool, a basic economic agricultural branch in that period; bovines ranked second.

The agriculture of the region supplied the market with ever more products /Romanian pressed cheese, cheese in sheephide leather bags, pastrami, etc./ the period being characterized by a large cattle market, a phenomen specific to the whole country. In the culture of plants, maize covered 95 per cent of the whole arable land.

The mixed type was characteristic at that time of intrahilly depressions, the inner ridge of the outer sub-Carpathians and the piedmont area between the localities of Rimna and Buzău. The natural conditions in these places viz, brown forest soils and podzol soils, as well as the 600-700 mm precipitations that fell in a year favoured the growth of cattle due to the rather great expanses of natural pasture land and hayfields /53,5 per cent of the arable land/, of fruit-trees, and cereals /maize and wheat/ and in part of fowl. Speaking of fruit-trees, the plum-tree prevailed.

Viticulture was well represented in the terraced piedmont between Zábráut and Rimna. The highly favourable climatic conditions, the Ca-rich soils, the eastward, southward and southeastward exposed slopes, rendered the cultivation of vine a most economically efficient occupation. Except for cattle breeding, husbandry was rather poor.

Cultivation of vine, this basic agricultural branch, was steadily developing up to the end of the nineteenth century when the attack of phylloxera /1883/ destroyed vast viticultural areas which in this way became unproductive or were later on turned into pasture lands. Consequently vine was cultivated on much smaller areas as compared to the year 1857 so that by 1890 only some 37,8 per cent of the arable land was covered by vineyards.

2/ Geographical Types of Agriculture in the Twentieth Century.

In the first half of the twentieth century, the important changes occurring in land use were caused by the degrading of some grounds on the one hand, and by the extention of some highly economically efficient cultures, on the other. Thus, development of wood processing and export of wood enhanced the exploitation of some afforested massifs which, when cleared, became unproductive /the upper basin of the Buzău, Slănic, Rimnic, Milcov, Putna, Şuşiţa etc./, and were turned into pastures.

Highly efficient cultures such as vine and fruit-trees have largely developed by the planting of vine in phylloxera-destroyed vine-yards or beyond these, and of fruit-trees in the outer sub-Carpathians, intra-hilly depressions and on the eastern ridge of the inner sub-Carpathians. The result of these changes was that as compared to 1857 vine started being cultivated as far as the piedmont plain, and fruit-trees were planted over important areas.

With a view to improving land use and extending the agricultural grounds in respect to the natural and socio-economic conditions, huge afforestation works, terraces for the plantation of vine and fruit-trees, pastures and hayfields started being made in the course of the years 1950-1968. It should be remembered that, due to a better utilization, the agricultural area of this region was extended by some 20.700 ha in the years 1890-1968, the weight of fruit-trees and vine increasing from 3,1 % to 8,1 % and from 10,9 % to 13,5 %, respectively, at the expense of natural pasture lands and hayfields.

The territorial distribution of the main cultures and the specializing of the various branches of the agrarian economy as a result of intensive agriculture after the process of socialization led to the formation and individualization of four geographical types of agriculture, each with its specific features: animal breeding, mixed, cultivation of vine, cereal cultures and animal breeding.

Animal breeding, more limited than in the past, is restricted to the inner sub-Carpathians and intra-hilly depressions. This type covers some 40,2 per cent of the total surface of the region. In the total arable land, natural hayfields and pastures amount to 82,5 per cent. The great weight of these natural hayfields and pastures is due in part to the melioration and reclaiming of some grounds considered as unproductive. Only in the years 1956-1968, some 9.500 hectares were turned into hayfields and pastures most of them in the Buzău, Slănic, Putna, and other basins. Dus to the large areas covered by natural pastures and hayfields and to their nutritive qualities, animal breeding, mostly ovines, developed /180,5 ovines per 100 ha of agricultural ground/. Arable lands and orchards located on the mildly dip-

ping slopes have a smaller weight than natural pastures and hayfields /12,1 per cent arable land and 5,3 per cent orchards/. The culture of cereals, of maize in particular, prevails. As regards the value of the agricultural output, over 70 per cent is represented by animal output and natural pastures and hayfields.

Due to the particularities of this type of agriculture 42-47 per cent of the existing labour potential is employed during top months /July, October/, in the other months much lower values /below 40 per cent/ are recorded.

The mixed type covers at present 35,4 per cent of the whole surface of the region. Agricultural grounds, particularly pastures and hayfields, rank first /56,7 per cent/ followed by arable land /25,8 per cent/, fruit-trees /13,7 per cent/ and vine /3,8 per cent/.

Although fruit-trees cover smaller areas than other agricultural categories /arable land, pastures, hayfields/, yet due to their economic efficiency, they represent the main agricultural branch in the outer sub-Carpathians and intra-hilly depressions. Therefore in the period between 1952-1968, as a result of new plantations in the Buzău, Slănic, Rimna, Putna, Şuşiţa and other basins, the area planted with fruit-trees extended so that 71 per cent of the regions orchards are found in these places.

The vast pasture lands and hayfields as well as the culture of fodder plants led to the raising of livestock, especially sheep for their milk and wool, and cattle. This is the second agricultural branch in the outer sub-Carpathians and the intra-hilly depressions.

Arable lands cover 33,1 per cent of the region. Cereals, maize in particular, fodder plants, potatoes and vegetables are preferentially grown. Maize amounts to 78,5 per cent of the cultivated area as a direct consequence of the favourable pedoclimatic conditions for its culture. As regards the value of the agricultural output, in the year 1968 the vegetal output represented some 56 per cent, fruit-trees amounting to 27,6 per cent.

As regards manpower, the mixed type is characterized by a rather higher employment of the existing potential due to the development of some agricultural branches and sub-branches which require more labour. In spring and autumn, that is almost five months a year 47-52 per cent of the local labour potential is used.

Viticulture represents only 17 per cent of the total surface of the region yet cultivation of vine is the most important branch of the agrarian economy in the piedmont area between the localities of Zăbrăut and Rîmnic. Here are the famous vineyards of Panciu, Odobești, Cotești, etc. which produce high-quality yields, amounting to 76,5 per cent of the region's viticultural patrimony.

Vine amounts to 43,0 per cent in the structure of agricultural surface. As regards the arable land, cereals, particularly maize /61,7 per cent of the cultivated area/, and fodder plants /6,9 per cent/ are preferentially grown due to both the favourable pedoclimatic conditions for this culture and the needs of an ever more numerous population and a rather great number of animals. Sheep, fowl and swine prevail and also horses, the latter being required by vineyard works. Because vine is highly profitable, starting with the year 1952, the existing vineyards, deg-

raded through ageing, were steadily improved and new plantations were made on terraced grounds. To the extension of vine-growing surfaces contributed also the development of the wine-consuming centres within the region and in its vecinity and the setting up of big vinification complexes /at Focsani, Cotesti/.

As regards the value of the agricultural output, 94 per cent is represented by the vegetal output, 91,5 per cent by the cultivation of vine.

Due to the steady specialization of this territory, 80-100 per cent of the existing local labour potential is employed, and in top months, this potential cannot even cope with the volume of agricultural works.

Cereal cultures and animal breeding is specific to the piedmont between the localities of Rimnic and Buzău. Formerly, this territory had a mixed agrarian economy with no characteristic branches. In the past few years, as a result of the urban development of the adjoining towns /Buzău, Rimnicu Sărat/ and the consequent increase of the town population, agriculture has acquired some specific features determined by the very consumption needs of this population. Arable lands rank first /73,7 per cent of the agricultural surface/ followed by vineyards /12,3 %/. The great weight of the latter is the result of local propicious natural conditions and the old tradition in cultivating vine on the one hand, and the demand of grapes for the supply of the fully developing urban centres, on the other. At the same time, some important changes occurred in the structure of arable lands. Besides cereals, which prevail, industrial plants /sugar beet, tabacco/ cover large areas due both to propitious climatic conditions /soil, climate/ and the need of supplying the adjoining units which process such plants. Fodder plants are also largely

grown, hence, animal breeding developed too /especially cattle, swine and fowl/ for the supply of towns with animal products /milk, meat/.

Specialization of this territory as reflected in the indicators of the value of agricultural output emphasizes that within the whole vegetal output /76 per cent of the gross output/ cereals rank first /35,8 per cent/ followed by vine /33,4 per cent/ and industrial plants /22,2 per cent/.

From those reported above it is evident that the geographical types of agriculture in the region studied have been functionally differentiated as against the past. The type of animal breeding agriculture has been restricted to ovines because of natural pastures. The mixed type has been much extended in the outer sub-Carpathians and intrahilly depressions and restricted in the piedmont area between Rimnic and Buzău.

At the same time, as against the past, owing to natural pastures and in part to the favourable conditions for cultivating fodder plants, agriculture specialized in the culture of fruit-trees and the raising of livestock /sheep, cattle/.

Cultivation of vine is much more extended than in the past; it covers an uninterrupted surface in the piedmont area between Zábráut and Rimnic; cultivation of vine is a major branch of the agrarian economy in these parts.

Finally, in the piedmont area between Rimnic and Buzău cereal cultures and animal breeding is being individualized in the framework of the former mixed type of agriculture. The delimitation of this territory as a geographical type of agriculture was favoured both by propicious natural conditions /grounds appropriate for the cultivation of cereals and vine/ and economic factors.

The neighbourhoud of two important, fully developing urban centres /Buzău and Rimnicu Sărat/ whose inhabitants are steadily increasing, stamped the adjoining agricultural area with some specific features imposed by the supply of these towns with agricultural products.

However, the geographical types of agriculture are not developed everywhere in agreement with the natural environment and the economic requirements. Therefore, works for meliorating barren lands and improving the existing vineyards and orchards are provided for in the long-term plan. The areas covered by vines and fruit-trees should improve in agreement with the natural and economic conditions so that the geographical type of agriculture be a steadily developing geographical category.

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Figures

Fig. 1. Geographical types of agriculture in the year 1890.

A. Animal breeding;
B. Mixed type;
C. Viticulture;
   a./ Structure of the agricultural grounds:
      1/ Arable lands;
      2/ Pastures and hayfields;
      3/ Vineyards;
      4/ Fruit-Trees;
   b./ Structure of arable land:
      1/ Cereals;
      2/ Other cultures;
   c./ Structure of the animal stock /conventional units/:
      1/ Cattle;
      2/ Sheep;
      3/ Swine;
      4/ Horses.

Fig. 2. Geographical types of agriculture in the year 1968.

A. Animal breeding
B. Mixed type
C. Viticulture
D. Cereal culture and animal breeding:

a/ Structure of agricultural grounds;

1/ Arable lands;
2/ Pastures and hayfields;
3/ Vineyards;
4/ Fruit-trees;

b/ Structure of arable land;

1/ Cereals;
2/ Other cultures;

c/ Structure of the animal stock /conventional units/:

1/ Cattle;
2/ Sheep;
3/ Swine;
4/ Horses;

d/ Labour employment:

1/ Field cultures;
2/ Vineyards;
3/ Fruit-trees;
4/ Husbandry;
5/ Other works;

e/ Value of commodity output:

1/ Field cultures;
2/ Vineyards;
3/ Fruit-trees;
4/ Animal breeding;
5/ Other sources;

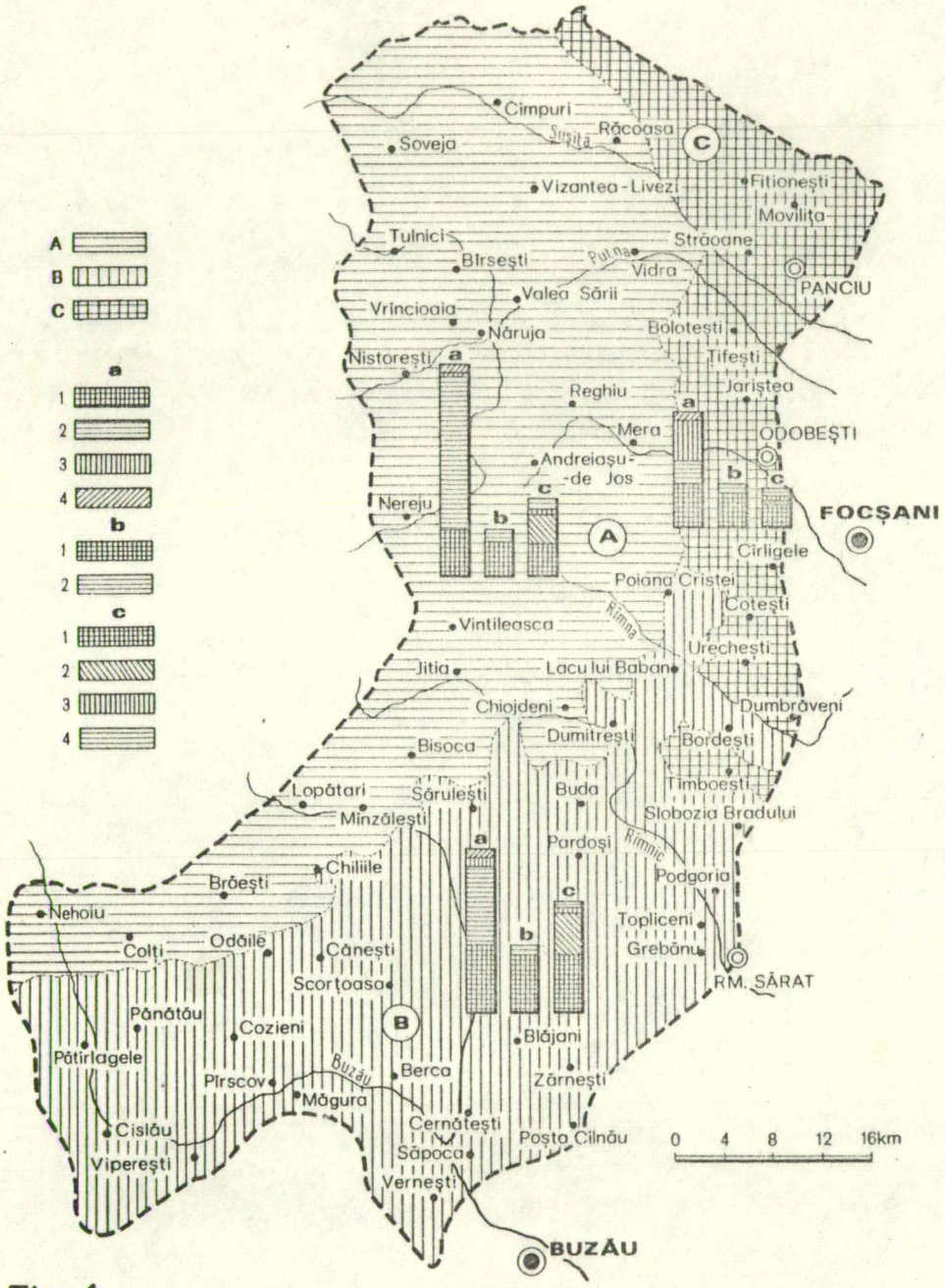
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Fig. 1.

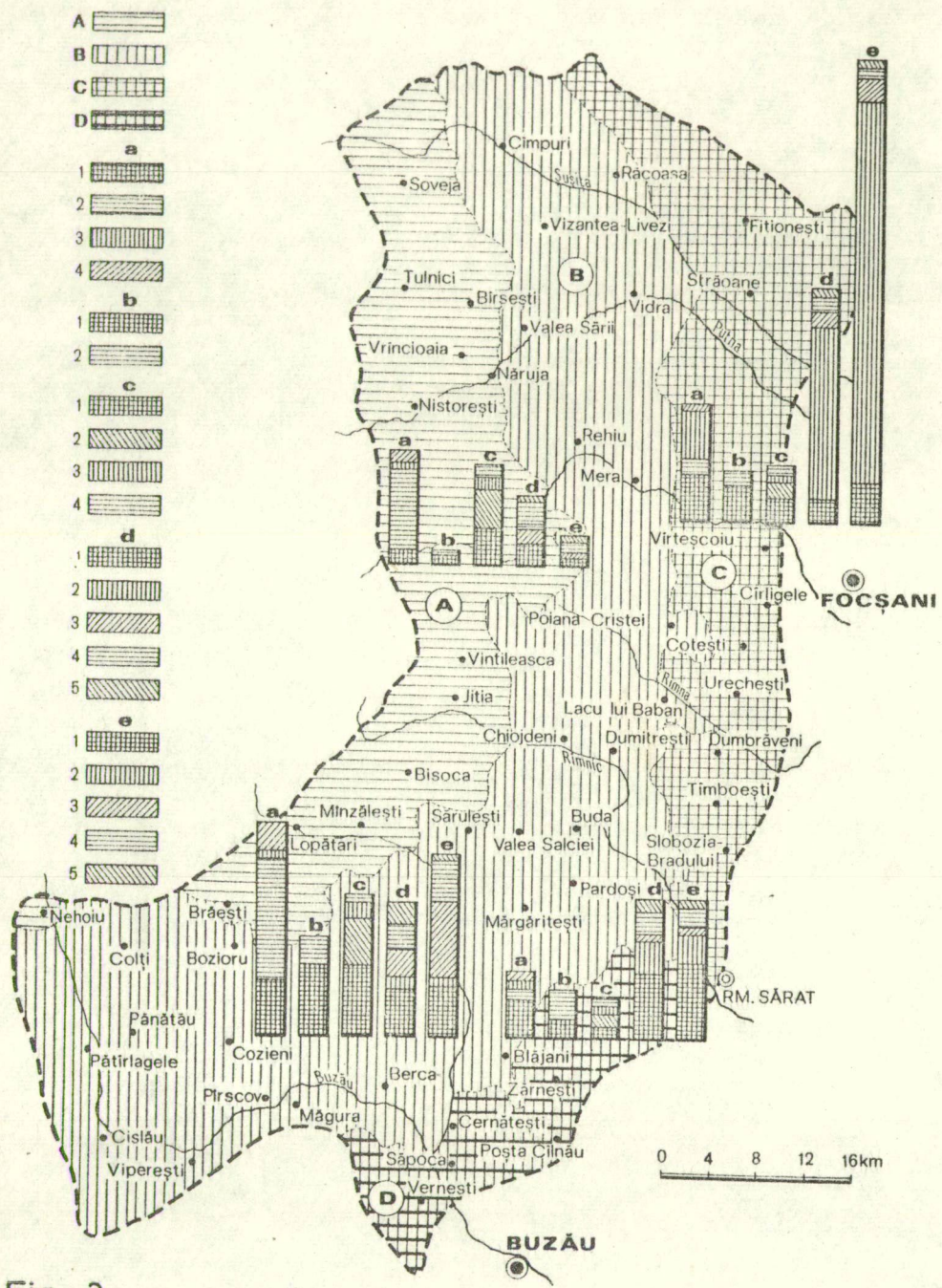
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Fig. 2.

THE TERRITORIAL DIFFERENCES OF THE CHANGES IN THE PERIPHERAL POPULATION OF THE SOUTHERN PART OF THE GREAT HUNGARIAN PLAIN

/1960-1970/

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The southern part of the Great Plain /the counties of Bács-Kiskun, Csongrád and Békés/ belongs to those areas of our country where owing to a peculiar historical-economic development the ratio of the peripheral population is high.

According to the data of the 1970 census, 22,3 per cent of the population of the southern /part of the/ Great Plain, as against the nationwide 8,3 per cent, live in suburban peripheral areas.
The urban areas of towns and villages afford living place to 34,5 and 43,2 per cent respectively of the population. /The national ratios are 43,1 and 48,6 per cent respectively./

The nationwide ratio of the peripheral population of the towns is 4,4, that of the villages 11,5 per cent. This roughly two and a half times difference in the ratio exists also between the towns and villages of the southern Great Plain,

but the ratio numbers are higher. The ratio of the peripheral population of the towns is 12,8 per cent, that is it is higher than the nationwide average of the villages. More than 20 per cent of the population of some towns live even now in suburban peripheral areas. /Szarvas, Kiskunhalas, Kiskunfélegyháza, Kecskemét are in this respect the first in the country./ The average value of 28,5 per cent of the villages comprise many ratios of even 70 to 90 per cent.

In the territory of the southern Great Plain the great majority of the peripheral population live on farms.

The farm is under definite historical-economic conditions a type of settlement corresponding to, and characteristic of, the type of agricultural production.

The large-scale social and political changes that have taken place in the last quarter of a century, especially the socialist reorganization of the agriculture, have created a contradiction between the new framework of production and the form of settlement become anachronistic, which has led to a decrease in the number of the farmland population. This process has coincided with the social reshuffle in the wake of large-scale industrialization, the territorial regrouping of the population, and it corresponds also to our objectives.

But the decrease of the farmland population has not taken place with the speed and uniformity expected at the beginning. Besides other, and not only economic, factors the growth of the role of household farming plots has strengthened the economic basis of the farms which ensure favorable conditions of this type of farming. The territorial differentiation is as follows: as the structure and form of agricultural production

differ from region to region owing to the natural conditions and the traditions of production, the depth of the contradiction that has arisen between the new method of production and the farmstead as well as the degree of the resulting decrease in population is also different. On the basis of the available statistical data this can be determined, with an approximate accuracy but well reflecting the characteristics of the process, through the territorial differences of the changes in the peripheral population.

II.

Between 1960 and 1970 the total population of the southern Great Plain decreased by 1,8 per cent. In consequence of earlier migrations away the age composition of the population of the area differs unfavorably from the national average: the natural growth of the population does not amount to 2 per cent and compensates only for about one half of the loss of 54.000 persons through migration /Table 1/.

Components of the Migration of the Population According to Administrational Categories

	Number population	Natural growth /1960 - 1969/		Difference due to migration /1960-1969/		Actual growth /1960-1969/		Number of population /1970/
		head	%	head	%	head	%	
Towns	530.736	6.176	1,2	42.215	8,0	48.391	9,2	579.127
Villages	957.860	21.402	2,2	-96.486	-10,1	-75.084	-7,9	882.776
Southern Great Plain	1.488.596	27.576	1,9	-54.271	- 3,7	-26.693	-1,8	1.461.903

The towns of the area - with the exception of Makó, Hódmezővásárhely and Csongrád - have increased in population. The joint rate of growth /9,2 per cent/ is relatively high, which is first of all due to the dynamic development /19,8 per cent/ of Szeged. The total population of the villages has decreased by 7,9 per cent. In the decade under consideration there have been only a few villages with growing populations, and even the majority of these belong to the direct attration area of some dynamically developing centers /Fig. 1/.

On the whole the territorial differences in the direction and rates of the changes in the toral population can be brought into connection with the different types of agricultural production only vaguely and indirectly.

The 1,8 per cent decrease of the total population of the southern Great Plain is the result of an 8,8 per cent increase of the urban population and a 26,7 per cent decrease of the peripheral population. /The national rates are: 7,0 and - 23,3 per cent respectively./ This means that in the southern Great Plain the urban population, besides the decrease of the total population, has grown in a greater measure than in the country as a whole.

The urban population has grown in all towns and in the majority of the villages by a total of 16,1 per cent and 3,5 per cent respectively. /Table 2/.

Changes in the urban population according to administrational categories

	Urban population /1960/		Change /1960-1969/		Index of relative change	Urban population /1970/	
	number	ratio /%/	persons	%		number	ratio /%/
Towns	434.909	82,1	70.218	16,1	6,2	505.127	87,2
Villages	609.526	63,6	21.689	3,5	12,4	631.215	71,5
Southern Great Plain	1.044.435	70,2	91.907	8,8	10,7	1.136.342	77,7

Decrease is characteristic only of the valley of the Danube, the northern and southern parts of the county of Békés and the district of Makó, i.e. areas where the ratio of the peripheral population is already minimal. The villages of the sandy area of the land between the Danube and the Tisza stand out with a growth rate of the urban population exceeding even the average of the towns. The majority of these villages, as independent administrational units, are young; they separated themselves from the areas of other villages and towns with large outlying districts some twenty years ago. The center of these villages is small, and well-ordered settlements are developing now /Fig. 2/.

The peripheral population has in its totality decreased considerably both in the towns and the villages - by about 120.000 persons. The rate of decrease has been 22,1 per cent in the peripheral population of the towns, 28,0 per cent in

the suburban population of the villages, and a total of 26,7 per cent in the peripheral population of the Southern Great Plain. As, however, the total population of the towns has grown, the index of the relative change of the peripheral population has been the highest in the towns: 28,5 per cent, as against 21,7 per cent in the villages. /Table 3/.

Changes in the peripheral population according to administrational categories

	Peripheral population /1960/		Change /1960-1969/		Index relative change	Peripheral population /1970/	
	number	ratio /%/	persons	%		number	ratio /%/
Towns	95.055	17,9	- 21.055	-22,1	-28,5	74.000	12,8
Villages	349.106	36,4	- 97.545	-28,0	-21,7	251.561	28,5
Southern Great Plain	441.161	29,8	-118.600	-26,7	-25,2	325.561	22,3

The decrease of the peripheral population is smaller than the average in the wine and fruit-producing sandy areas between the Danube and the Tisza. The forms of association created here have left essentially unchanged the economic basis of the farmstead /domestic and share cultivation, household farming plot, etc/. In the valley of the Danube, in the area of the elevated loess flatland of Bácska and the land east of the Tisza, plowland cultivation has made commassation of the lands and relatively quick creation of the conditions of large-scale farming possible. In these territories the peripheral population has in ten years decreased in a greater than average measure, in some parts to less than its half. /Fig. 3/.

As a result of great and territorially different changes, essential modifications had taken place by 1970 as regards the ratio of the peripheral population to the total population. The ratio of the suburban peripheral population in the southern Great Plain altogether decreased from 29,8 per cent to 22,3 per cent; within this in the towns from 17,9 per cent to 12,8 per cent and in the villages from 36,4 per cent to 28,5 per cent. The maps of the 1960 and 1970 ratios show differences mainly in the region east of the Tisza; the region between the Danube and the Tisza is remarkable by its relative stability. /Figs. 4 and 5/.

More than three quarters of the population live on not quite 5 per cent of the territory of the southern Great Plain in areas qualified as urban; thus the density of population is high. /In 1960 1312 persons per sq km, in 1970 1428 persons per sq km./

By 1970 the density of the urban population of the towns had become more than twice that of the villages /2381 persons per sq km/. The density of the urban population of the villages

ranges between wide limits but the chief regularity of distribution is evident: the majority of the villages with low densities of population are to be found in the sandy region between the Danube and the Tisza. In spite of the tendencies toward equalization, this situation was characteristic even in 1970.

The density of the peripheral population had decreased from 25,4 to 18,6 per sq km. The values of the towns in both 1960 and 1970 were higher than those of the villages: by 1970 - owing to a smaller decrease - by more than 50 per cent.

According to the evidence of maps showing the territorial distribution in 1960 and 1970 the earlier sharp territorial differences had become more pronounced. During the ten years low density of peripheral population was associated with a great degrée of decrease, and high density of the peripheral population was associated with a lower than average rate of decrease; thus the difference in the relative density of population between the two main types of production in the investigated area had grown. /Table 4/.

Changes in the density of the urban and peripheral populations according to administrational categories

	Size of urban area sq km	Density of urban population person per sq km		Size of peripheral area sq km	Density of peripheral population person per sq km	
		1960	1970		1960	1970
Towns	212,18	2049,7	2380,6	2.724,49	34,9	27,2
Villages	583,68	1044,3	1081,4	14.773,23	23,6	17,0
Southern Great Plain	795,86	1312,3	1428,0	17.497,72	25,4	18,6

The density of the population in the valley of the Danube and in a large part of the elevated loess flatland of Bácska, in the areas of the Szeged district east of the Tisza, in the district of Makó and in the northern and southern parts of the county of Békés does not reach even one half of the average of the density of the peripheral population in the area. A connected area with a greater than average density of peripheral population is the whole of the region between the Danube and the Tisza and the middle parts of Békés county. The density of the peripheral population in the region of Kecskemét and in the sandy areas of the district of Szeged exceeds even double the average of the area. In these parts the density of the population of some villages and of the outlying districts of Kecskemét exceeds even 50 persons per sq km. /Kecskemét: 65,9, Hetényegyháza 69,0, Kunszállás: 66,5, Helvécia: 51,5 and Csanytelek: 75,8, Domaszék: 64,8, Zsombó: 56,1, Bordány: 51,1, Forráskut: 50,3 persons per sq km./ /Figs. 6 and 7/.

III.

The high proportion of the peripheral population - within this of the farmland population - is a peculiar problem of the Great Plain. As the three counties constituting the southern Great Plain occupy the first place in the whole of the country on the basis of these rates, investigation of this problem in the area is particularly important.

Summarizing it can be said that the peripheral population in the southern Great Plain has decreased at a rate similar to the previous period of 1949-1960, but the rate of the decrease

has been territorially very different. The differences of the density of the peripheral population in the two main types of agricultural production areas have become sharper on account of the tendencies in the decrease of the peripheral population.

On the basis of the values of the density of the peripheral population and the lasting tendency of the territorially differing rates of decrease it can be expected that while in a large part of the area the proportion of the peripheral population will decrease to a minimum, for a long time yet we shall have to reckon with the farmstead as a form settlement in the wine and fruit-producing areas of the land between the Danube and the Tisza.

L e g e n d s

Fig. 1. Changes in the population of the southern Great Plain between 1960 and 1970.

1 = growth above the average of towns /9,2 %/
2 = growth below the average of towns /9,2 %/
3 = decrease smaller than the average of villages /-7,9 %/
4 = decrease greater than the average of villages /-7,9 %/

Fig. 2. Changes in the urban population of the southern Great Plain between 1960 and 1970.

1 = growth above the average of towns /16,1 %/
2 = growth between the average of the southern Great Plain /8,8 %/ and the average of towns /16,1 %/
3 = growth between the average the southern Great Plain /8,8 %/ and the average of villages /3,5 %/
4 = growth below the average of villages /3,5 %/
5 = decrease

Fig. 3. Changes in the peripheral population of the Southern Great Plain between 1960 and 1970.

1 = growth
2 = decrease smaller than the average of the southern Great Plain /- 26,7 %/
3 = decrease between 26,7 and 50 %
4 = decrease above 50 %
5 = no peripheral population as early as 1960

Fig. 4. The ratio of the peripheral population to the total population in the southern Great Plain /1960/

The ratio of the peripheral population:

1 = 0
2 = 0,1 - 25,0 %
3 = 25,1 - 50,0 %
4 = 50,1 - 75,0 %
5 = above 75,1 %

Fig. 5. The ratio of the peripheral population to the total population in the southern Great Plain /1970/

The ratio of the peripheral population:

1 = 0
2 = 0,1 - 25,0 %
3 = 25,1 - 50,0 %
4 = 50,1 - 75,0 %
5 = above 75,1 %

Fig. 6. The density of the urban and peripheral populations of the southern Great Plain in 1960.
Density of the peripheral population /persons per sq km/.

1 = lower than one half of the average /12,7/
2 = lower than the average /between 12,8 and 25,4/
3 = lower than double the average /between 25,5 and 50,8/
4 = higher than double the average /above 50,9/

Density of the urban population /persons per sq km/

5 = lower than one half of the average of villages /522,1/
6 = lower than the average of villages /522,2-1044,3/
7 = lower than the average of towns /1044,4 - 2049,7/
8 = higher than the average of towns /2049,8 - /

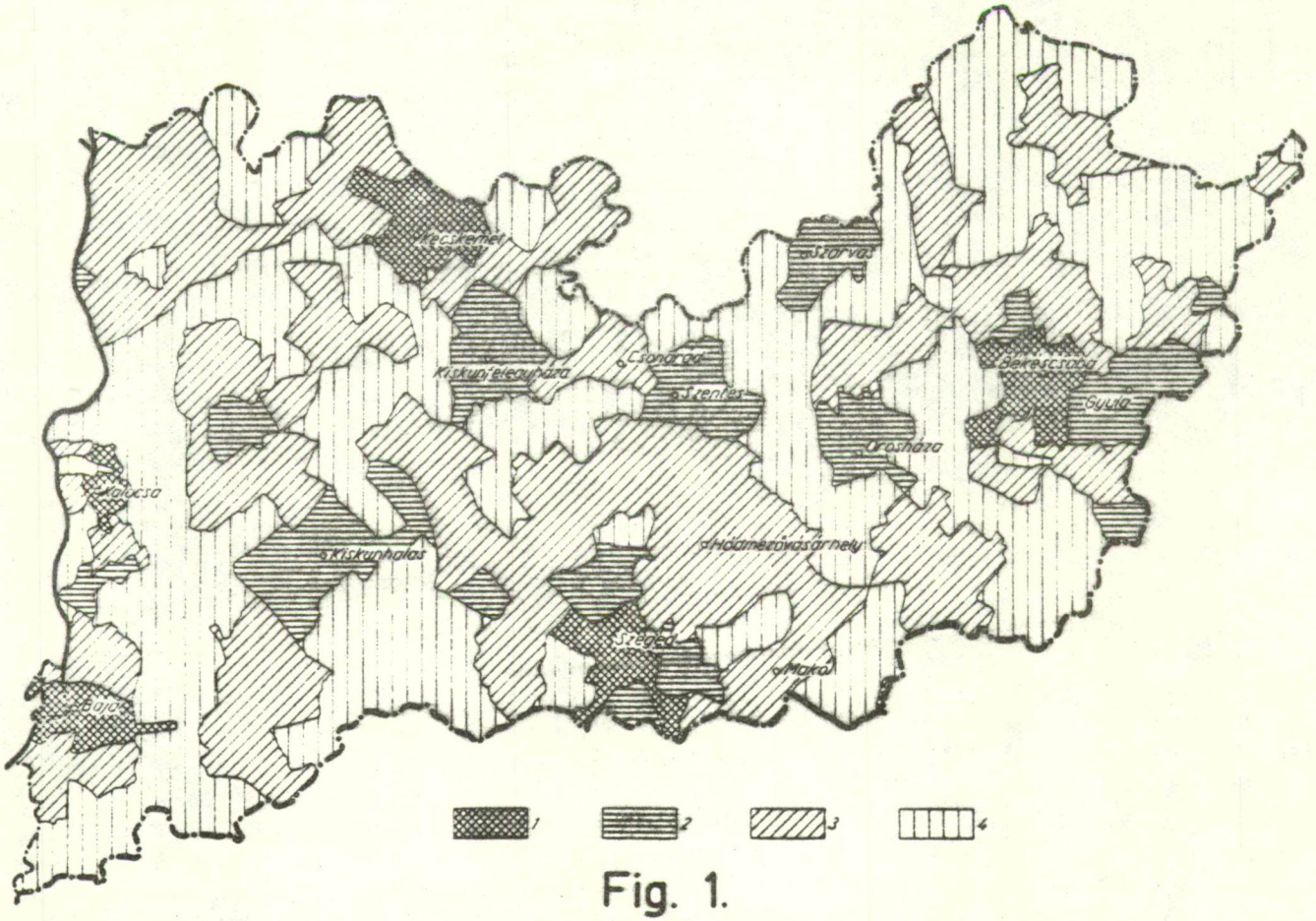
Fig. 7. The density of the urban and peripheral populations of the southern Great Plain in 1970.

Density of the peripheral population /persons per sq km/

1 = lower than one half of the average /9,3/
2 = lower than the average /9,4 - 18,6/
3 = lower than double the average /18,7 - 37,2/
4 = higher than double the average /37,3 - /

Density of the urban population /persons per sq km/

5 = lower than one half of the average of villages /540,7/
6 = lower than the average of villages /540,8 - 1081,4/
7 = lower than the average of towns /1081,5-2380,6/
8 = above the average of towns /2380,7 - /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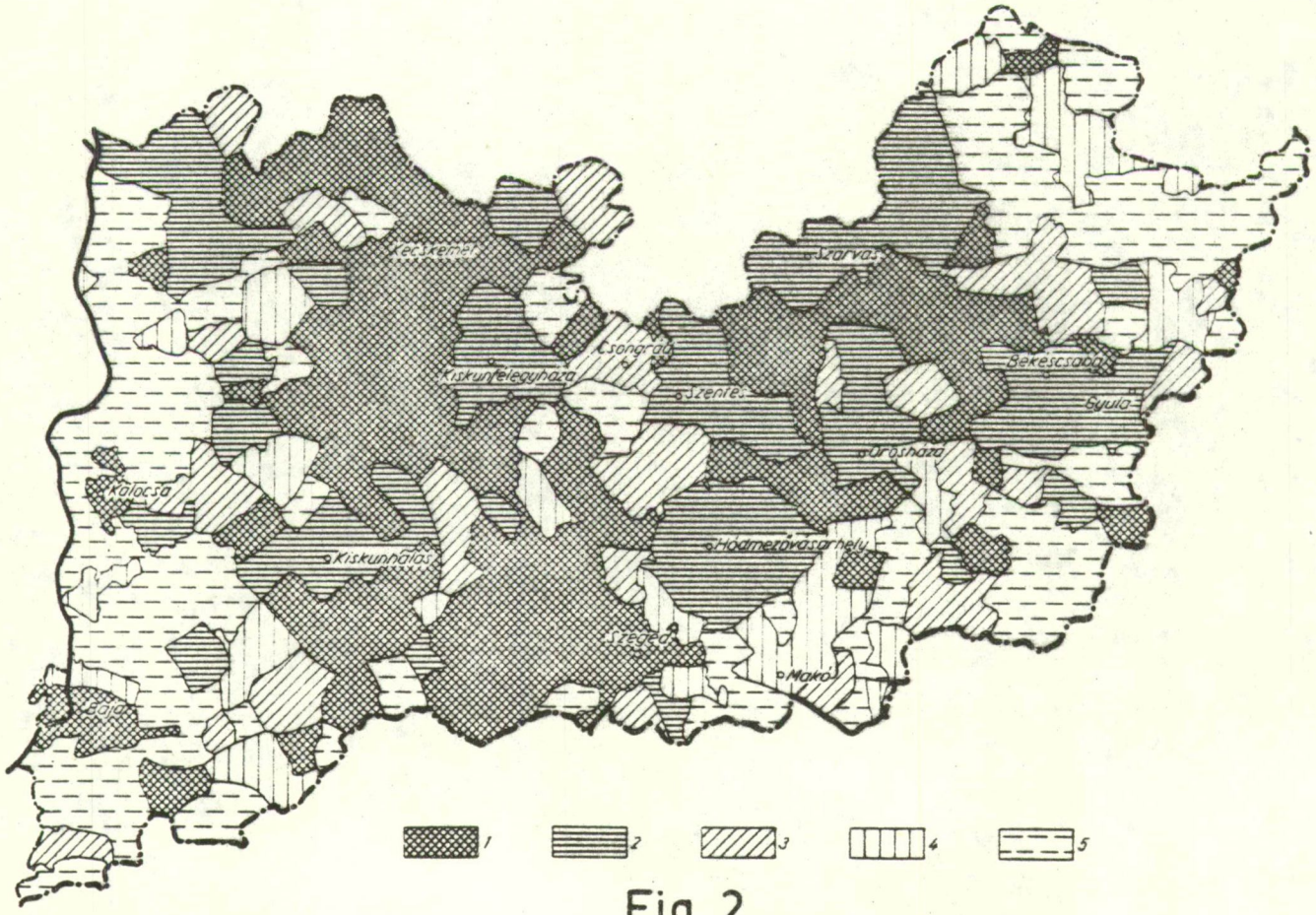
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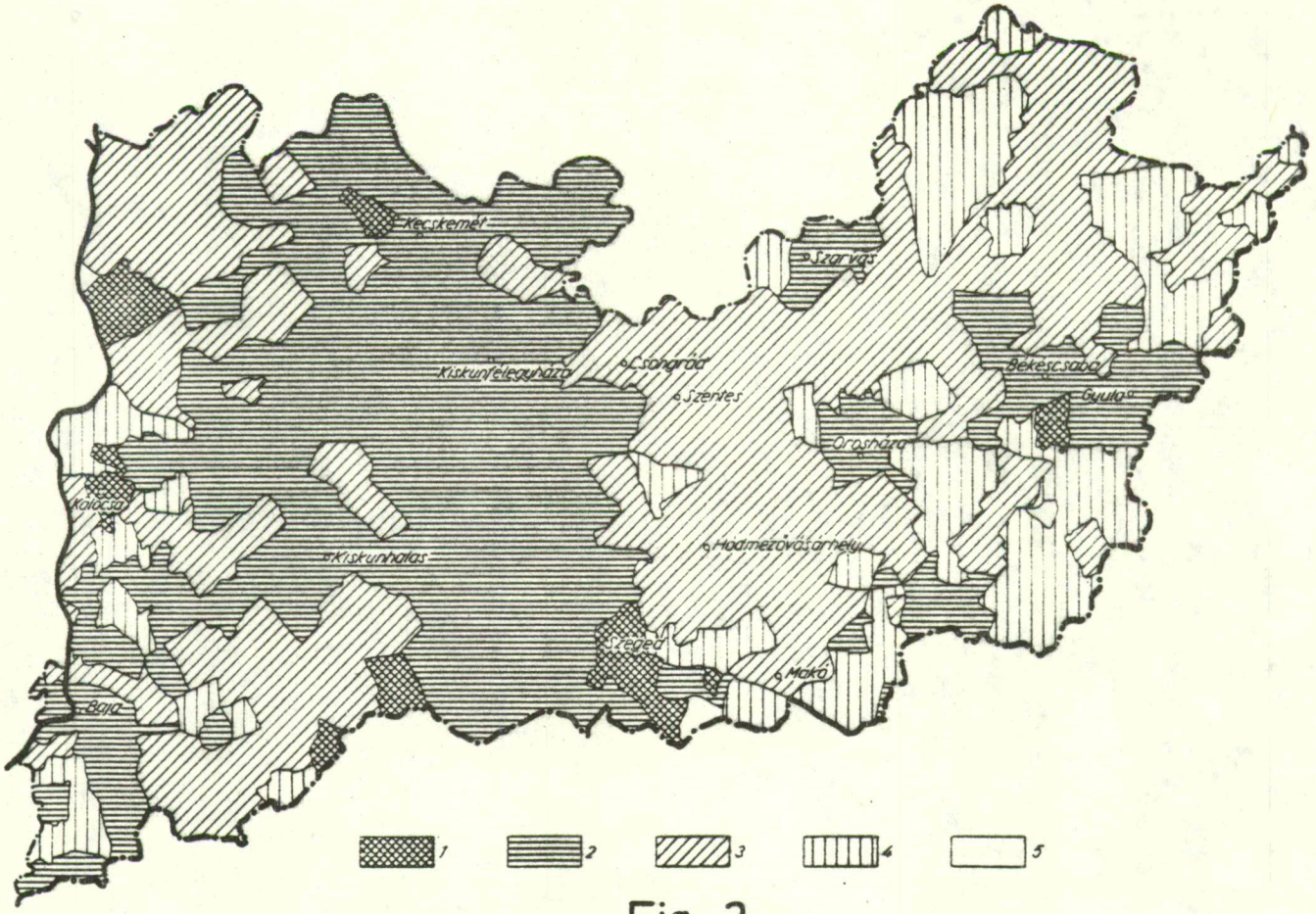
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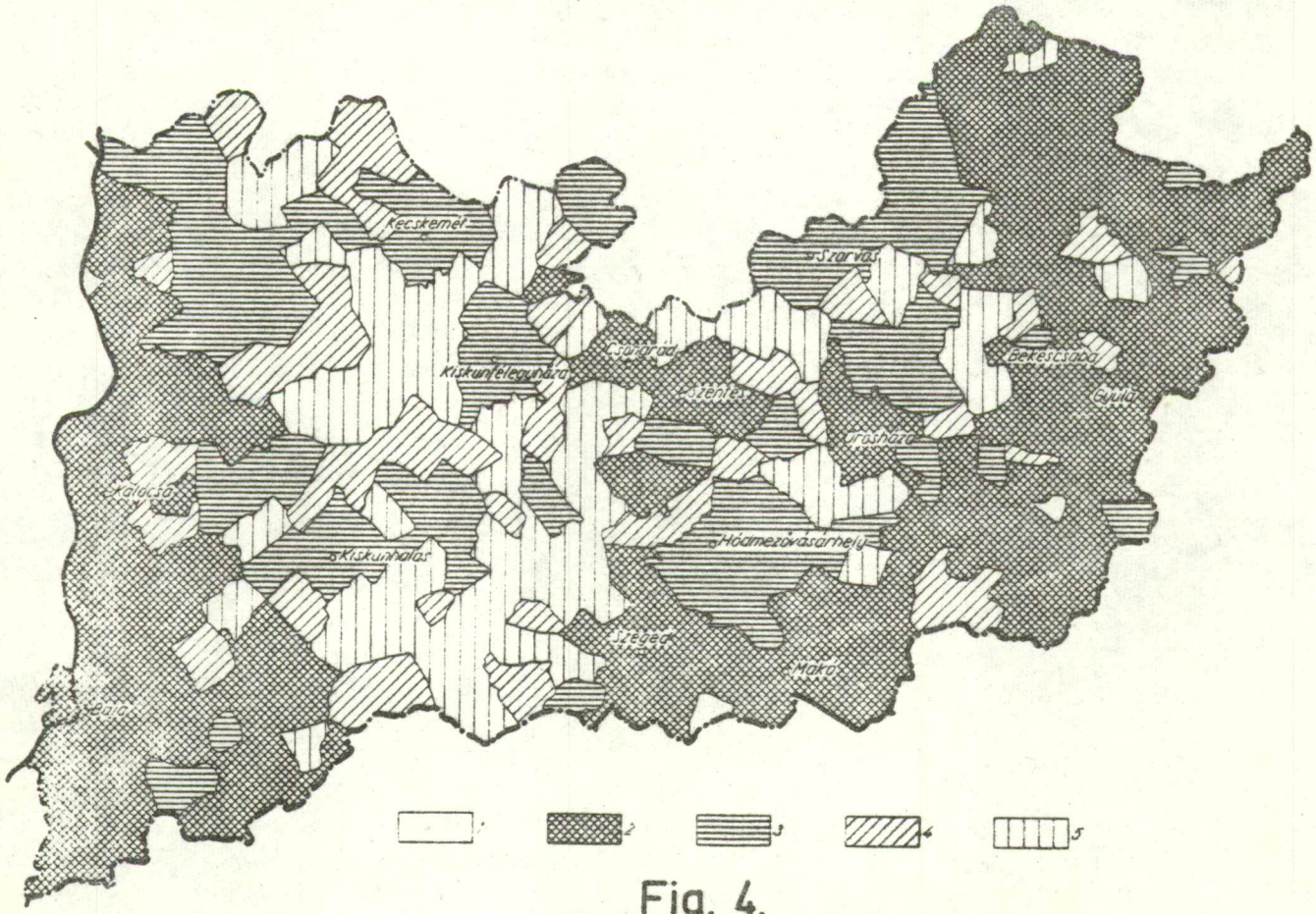
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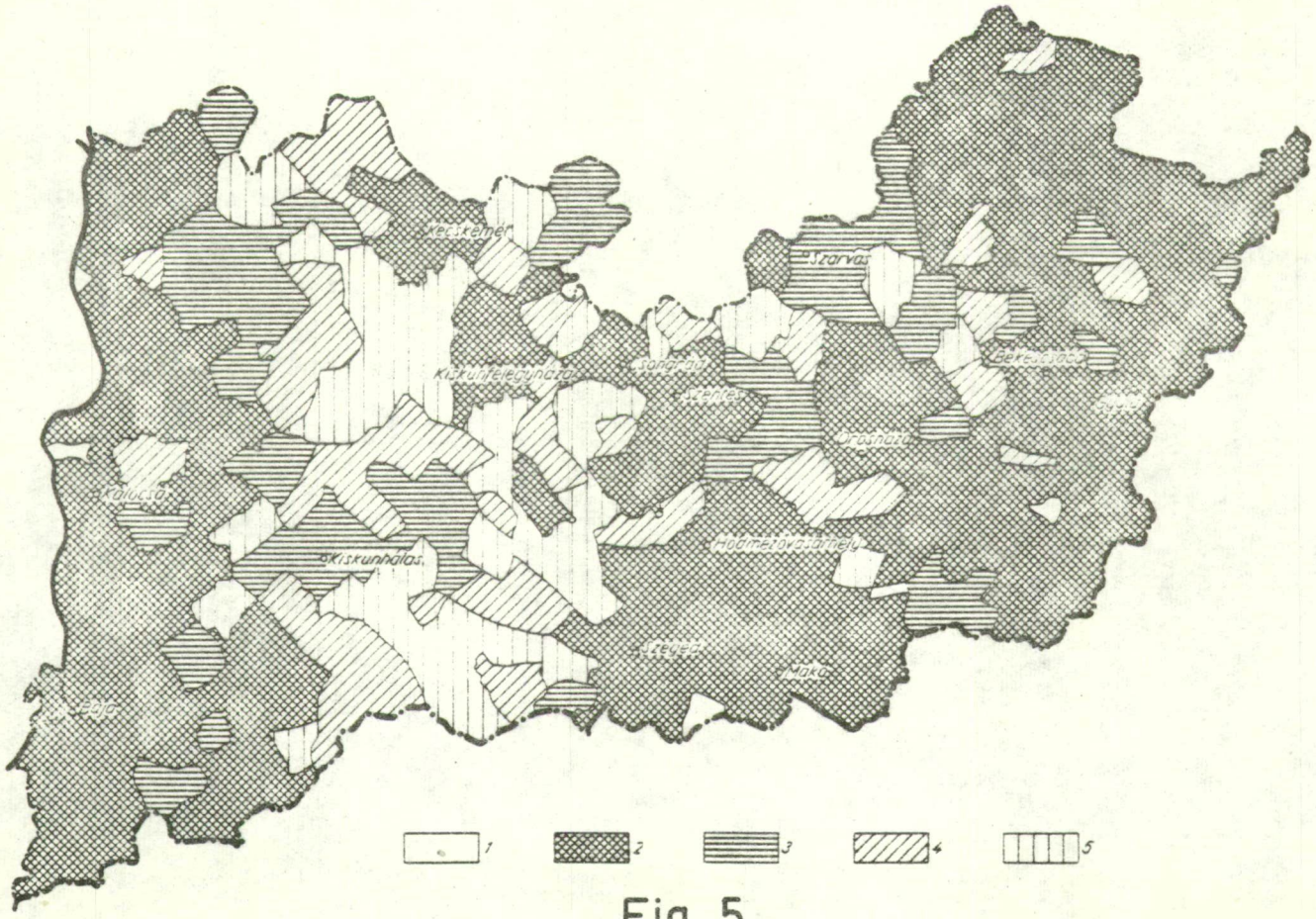
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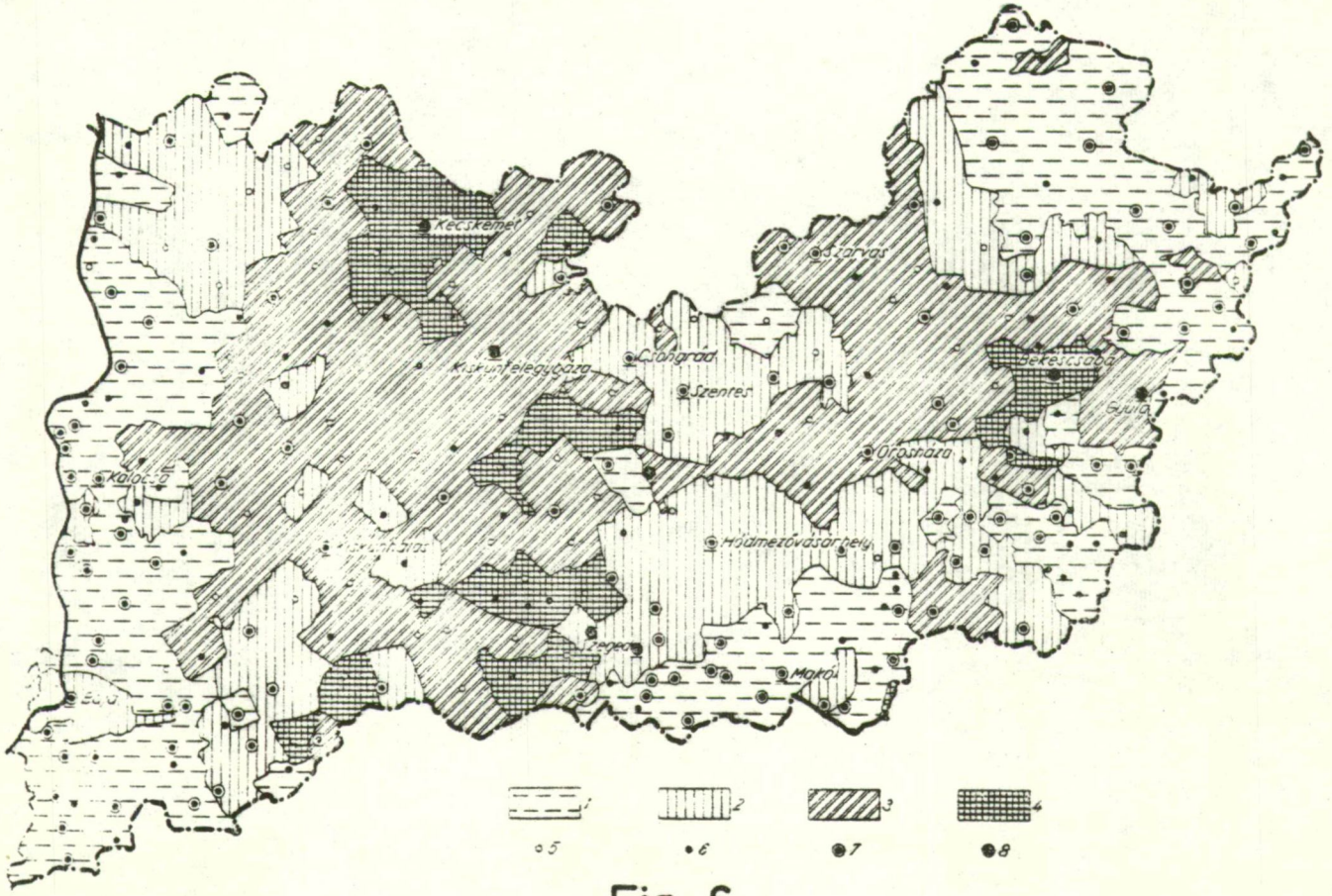
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Fig. 6.

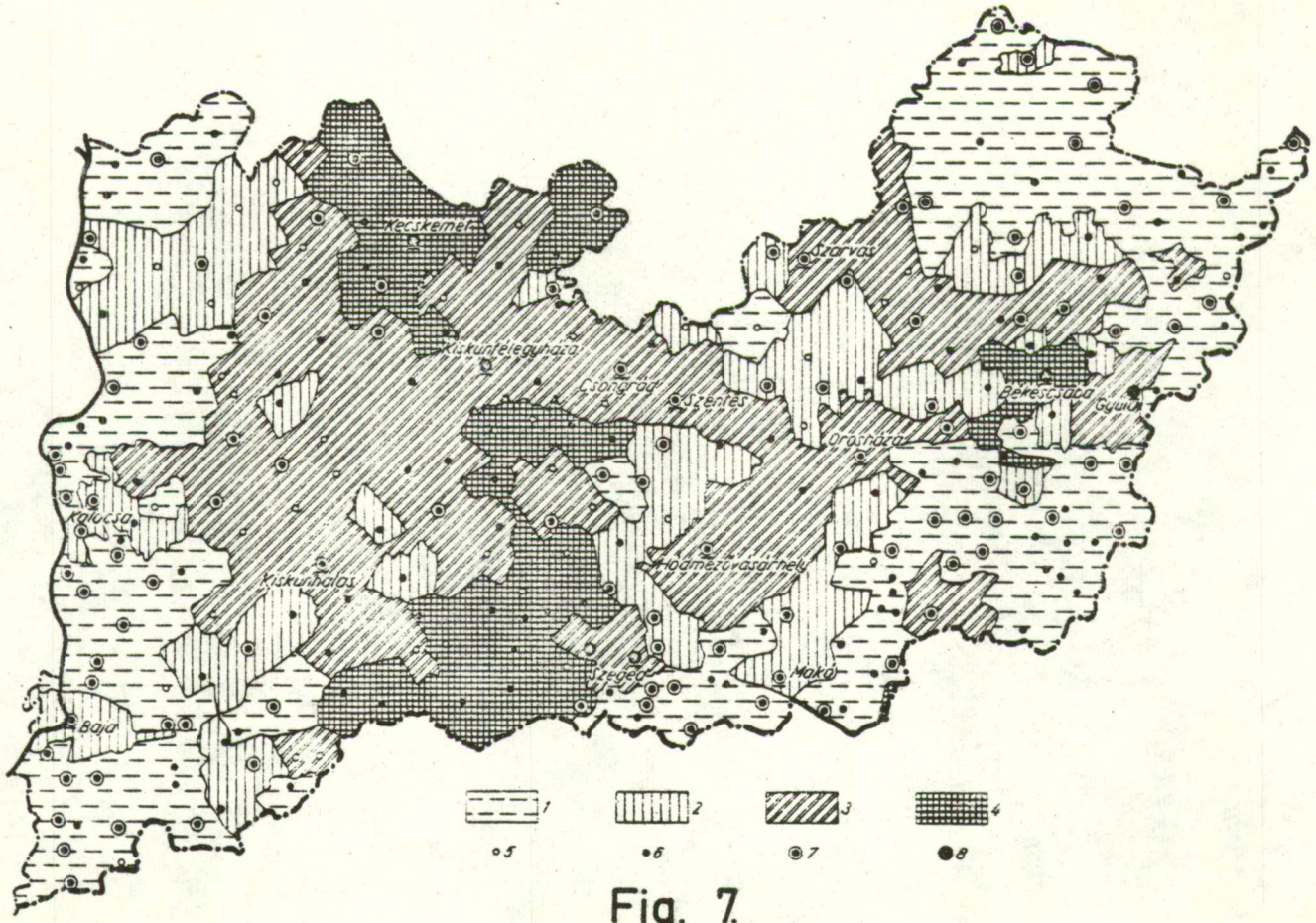
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Fig. 7.

ÜBER DIE PRODUKTIVITÄT VON ACKER- UND WALDBÖDEN IN DER GRÖSSENKLASSIFIZIERUNG DER LANDGÜTER FINNLANDS

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Einleitung

Die Landwirtschaft ist ein Erwerb, dessen Produktivität sich auf ganz wesentliche Weise auf die Landfläche gründet. Darum ist es natürlich, dass sich die Grössenklassifizierung der Landgüter auf die Ausdehnung der ihnen zur Verfügung stehenden Landfläche stützt, d.h. auf die Acker-, die Wald- oder die Gesamtfläche /Höijer 1953, Karten 68:11-18 und 69:1-4; Aario 1960, Karten 19:8-15; SVT III 54 u.a./. Eine derartige Klassifizierung lässt sich denn auch bei der Darlegung des funktionellen Charakters des Landgutes anwenden, weil die verfügbare Landfläche im allgemeinen bestimmt, auf welche Weise die Landwirtschaft betrieben werden kann. Auf der anderen Seite erweist eine auf die Landfläche gegründete Grössenklassifizierung der Landgüter, welcherart die Verteilung des Landkapitals auf die verschiedenen Landwirte oder Landgüter ist.
Dagegen vermittelt das Areal des Landgutes so gut wie keinerlei Kenntnisse über seine Produktivität /vgl. Morgen 1939, S. 318-320/, weil sich in der Produktivität, ausser der zu Gebote

stehenden Landfläche, auch die Ertragsfähigkeit sowie die landwirtschaftliche Produktionsausrichtung und Betriebsweise auswirken.

Um die Produktivität des Waldes auszudrücken, werden Bonitätsklassifizierungen benutzt, die meistens auf der Entwicklung des wachsenden Waldes basieren. Dabei wird die Bonität als Ausdruck der Leistungsfähigkeit eines Standortes, bezogen auf die Gesamtholzerzeugung einer bestimmten standortgemässen Holzart, aufgefasst /Hagberg & Arman 1959; Müller 1959, S. 481/. Die Bonitätsklassifizierung des Waldes kann auch auf die Vegetationstypen gegründet werden, wie es u.a. in Finnland geschieht /Ilvessalo 1965, S. 42-43/, wobei sich die Klassifizierung nicht auf die Wälder selbst, sondern auf den Waldböden bezieht. Trotz ihrer Verschiedenheit ist für diese beiden Klassifizierungen die Bewertung der Holzerzeugungsfähigkeit des Waldbodens kennzeichnend, und bei ihnen bleiben also die örtlichen Preisverhältnisse unbeachtet, die ihrerseits auf ganz entscheidende Weise auf die regionalen Unterschiede in der Produktivität der Landwirtschaft einwirken. Bei den Klassifizierungen der Ackerböden ist man nicht einmal soweit gegangen, sondern meistens hat man sich mit den durch das Vorkommen der verschiedenen Kulturflanzen oder die Grösse ihres Ertrages ausgedrückten Angaben über die regionalen Unterschiede der Produktivität begnügt /vgl. z.B. Skiebe 1958/. Zwar sind z.B. in Deutschland ganz eingehende Bonitierungsklassifikationen der Acker- und Wiesenböden entwickelt und benutzt worden /Matz 1956; August & Stams 1958 u.a./, wobei in der Bewertung der Ertragsfähigkeit des Bodens u.a. die Bodenarten, ihre Entstehung und Zustandsstufe wie auch einige Klimafaktoren berücksichtigt worden sind /vgl. Knickmann 1950, S. 50-59; Sievers 1950, S 230-232/, aber auch diese Klassifikationen gründen sich nicht auf wirtschaftliche Gesichtspunkte /vgl. Haase 1967, S. 672/.

In der Erzeugung der Landwirtschaft lassen sich eine biologische und eine wirtschaftliche voneinander unterscheiden /Lento 1956, S. 129/. Als ihr Gesamtergebnis entsteht die Bonität des Agrarbodens, unter der die an jeder Stelle des Bodens bestehende Produktivität dann verstanden wird, wenn die Böden des Landgutes planmässig benutzt werden, um Land- und Forstwirtschaft zu betreiben. Diese Definition der Produktivität setzt also eine Abschätzung sowohl der biologischen als auch der wirtschaftlichen Ergiebigkeit des Bodens voraus. Am besten lässt sich diese Bewertung unter Zuhilfenahme des Acker- und Waldbodens durchführen, denn beide bedingen unter den in Finnland bestehenden Verhältnissen den Hauptteil des Ertrages der Landgüter.

Die biologische Produktivität von Acker- und Waldböden kann an Hand des Materials der Steuerklassifizierung der Agrargrundbesitztümer klargelegt werden /vgl. Varjo 1956, S. 65-74; 1966; Häkkilä 1970/. Bei den Ackerböden entwickelte sich dieses Verfahren, durch manche Phasen hindurch im Bemühen um eine Besteuerung, zu einer Bestimmung des Reinertrages des landwirtschaftlichen Betriebes. Anfangs hatte man als Grundlage für die Bewertung den Haferertrag benutzt. Da aber die Beurteilung des Ertrages dann Schwierigkeiten bereitete, wenn auf dem Acker Hafer nicht angebaut wurde, entwickelte man Methoden, die sich anstatt auf den Haferertrag auf eine Beurteilung der naturbedingten Beschaffenheit des Bodens wie auch anderer Voraussetzungen des Ertrages stützten /Varjo 1971, u.a./. So begannen Ende der 40er Jahre Bestrebungen hervorzutreten, zu einem neuen Besteuerungssystem überzugehen, bei dem die unterschiedlich bebauten Gewanne des landwirtschaftlichen Grundbesitzes gemessen würden. Der bebaute Boden, zu dem Acker, Kulturweide, Naturwiese und -weide gezählt werden, wurde dabei nach der natürlichen Beschaffenheit und Ertragsfähigkeit des Bodens sowie nach der Lage der

Gewanne bonitiert. Beim Waldboden würde der Reinertrag durch dessen Klassifizierung nach der Produktivität bestimmt.

Bonitierung der Ackerböden

Nach den für die Steuerbonitierung der Ackerböden gegebenen Regeln /VVJ Nr. 92/1960/ sind in Finnland den verschiedenen Bodenarten bei der Steuerklassifizierung folgende relative durchschnittliche Grundpunktwerte beigelegt worden:

Moränenböden	50	-	90	Punkte
Grobsandböden	30	-	50	"
Feinsandböden	70	-	100	"
Schluffböden			40	"
Feinsandtonböden			100	"
Schlufftonböden			70	"
Sehr schwere Tonböden			90	"
Organische Bodenarten	30	-	80	"

Diese Grundpunktwerte stiegen wegen Mächtigkeit und Mullhaltigkeit der Ackerkrumenschicht, wegen Dränung und sonstiger, die Voraussetzungen des Reinertrages mehrender Faktoren, dagegen sanken sie wegen Steinigkeit, nachteiligen Gefälles, Grunddränungsschwierigkeit und ungünstiger Form der Gewannfiguren wie auch beeinträchtigend weiter Entfernung sowie anderer diesen vergleichbarer, die Voraussetzungen des Reinertrages herabsetzender Faktoren /VVJ Nr. 92/1960/.

Bei der auf die Steuerbonitierung gestützten Taxierung berücksichtigt man das Klima in den nach Gemeinden für den landwirtschaftlichen Grundbesitz festgelegten Besteuerungsnormen, in denen sich der Geldwert des Reinertrages von Kulturland je

Steuerhektar auf die Buchhaltungsstatistik über den Betriebsüberschuss der Landgüter gründet /vgl. Lento 1956, S. 134-153 u.a./. Durch Multiplizieren der Steuerhektarzahl der Gemeinden mit dem genannten Geldwert des Reinertrages von Kulturland /Lagegruppe 1/ erhält man die relative biologische Ergiebigkeit von Ackerland, die auf Abb. 1 nach Gemeinden vermerkt ist. Die besten Gemeinden liegen südlich der linie Pori-Tampere-Hämina. Von hier aus vermindert sich, abgesehen von einigen Schärenhofgemeinden, die Ertragsfähigkeit der Ackerböden gegen Norden und Nordosten, wobei die schlechtesten Gemeinden vorwiegend nordöstlich der Linie Ylitornio-Haukipudas-Sotkamo liegen.

Steuerklassifizierung der Waldböden

Der Steuerklassifizierung der Waldböden liegen in Finnland die Waldtypen von Cajander /1916/ zugrunde. Dabei sind jedoch als die Steuerklasse verändernde Faktoren solche auf den Ertrag des Waldes einwirkenden Bedingungen berücksichtigt worden, die man als beständigt angesehen hat. Die Steuerklasse herabsetzende Faktoren sind dabei Felsigkeit, ausserordentlich starke Steinigkeit des Bodens, Windigkeit eines gegen offenes Wasser gelegenen Ufers, Empfänglichkeit von Vaara-Böden für Schneeschäden, Vermoorung, und Bodenverwässerung, durch Waldbrand veranlasste Schäden sowie sonstige Ursachen, durch die das Ertragsvermögen des Waldes herabgesetzt worden ist /Verordnung Nr. 376/1959; 352/1968/.

Die Waldböden wurden bis 1968 zur Bestimmung ihres Reinertrages in sechs Steuerklassen so eingeteilt, dass unter ihnen zur Klasse IA die Hainböden und die Böden vom Oxalis-Myrtillus-Typ gezählt wurden, zur Klasse IB die vom Myrtillus-

und Pyrola-Typ, zur Klasse II die vom Vaccinium-, Vaccinium-Myrtillus- und Empetrum-Vaccinium-Typ, zur Steuerklasse III die vom Calluna-Typ, Empetrum-Myrtillus-Typ, Eriophorum-Cladina-Typ und Hyloconium-Typ sowie die wüchsigen Bruchböden, zur Klasse IV die wüchsigen Reisermoorböden sowie zur Klasse V die kargen Waldböden /Verordnung Nr. 376/1959/.

Bei Bestimmung des Reinertrages von Waldboden ist der Zuwachs einer der wichtigsten Faktoren. Da der Zuwachs des Waldes sogar bei den Böden eines und desselben Waldtyps in den einzelnen Teilen Finnlands unterschiedlich ist /vgl. Ilvessalo 1960, S. 56/, hat man Finnland auf Grund des jährlichen Ertrages der Waldböden in neun Waldsteuergebiete eingeteilt /Verordnung Nr. 376/1959/. Bei jeder von diesen ist für jede Steuerklasse auf Grund der III. Reichswald-Linienschätzung der wirkliche mittlere Bestandeszuwachs je Hektar bestimmt worden. Dieser wird als Steuerkubikzahl bezeichnet /Komissionsbericht 1964: A 15, S. 13/. Da der Anteil der Waldböden verschiedener Steuerklasse in den einzelnen Teilen Finnlands unterschiedlich ist, sind in der Forstlichen Forschungsanstalt mit Hilfe der Ergebnisse der II. Reichswaldschätzung die Strukturgebiete des sog. Steuerkubikmeters und bei ihnen die durchschnittliche Struktur der Wälder bestimmt worden. So haben aus den Ergebnissen der Steuerklassifizierung die nach Gemeinden berechneten Waldsteuerzahlen bestimmt werden können, die auf Abb. 1 ersichtlich sind und aus denen also für die Waldböden der verschiedenen Gemeinden der durchschnittliche Holzertrag je Hektar hervorgeht /Komissionsbericht 1964: A 15, S. 41-43; Verordnung Nr. 352/1968/. Die durchschnittlich besten Waldböden, deren jährlicher Ertrag sich auf über 3,5 m^3 je Hektar beläuft, liegen demgemäss im grossen ganzen in dem Gebiet, wo reichlich Wälder der Steuerklassen IA und IB wachsen. Die Gemeinden, in denen der jährliche Ertrag der Wälder durchschnitt-

lich über 2,5 m^3/ha ausmacht, umfassen ein weites einheitliches Gebiet, das von der Südküste bis hin zu den nördlichen Teilen Seen-Finnlands und im Westen bis nach Nord-Satakunta reicht. Nördlich dieser Grenze überschreitet nur in den nördlichen Teilen Süd-Ostbottniens und in den Nordgemeinden Nordkareliens der Jahresertrag der Wälder 2 m^3/ha. In dem Gebiet schlechten Waldes in der Gegend von Oulu beträgt der durchschnittliche Jahresertrag der Wälder sogar weniger als 1,5 m^3/ha. Die in den Steuerkubikzahlen ausgedrückte jährliche Ertragsfähigkeit des Waldbodens verringert sich daher von der Nordgrenze-Seen-Finnlands nach Norden zu sehr schnell.

Bonität von Acker- und Waldböden in Finnland

Durch die auf die Ertragsfähigkeit des Bodens gegründete Steuerbonitierung hat die biologische Produktivität des Bodens bei Acker- und Waldböden bestimmt werden können. Da die Preise für Agrarprodukte bei den wichtigsten Erzeugnissen im ganzen Reich in ungefähr gleichem Betrage bestätigt worden sind, kann man der Ansicht sein, dass der besagte umgerechnete Steuersatz für Ackerland zugleich dessen relative Ergiebigkeit darstellt. Beim Waldboden verhaält es sich anders, weil der Stockpreis des Holzes in den verschiedenen Teilen des Reiches wechselt. Die wird bei der Besteuerung in ihren Grundsätzen berucksichtigt, indem man den auf die jährlichen Stockpreisverhältnisse von Holz gegründeten durchschnittlichen Geldwert des Steuerkubikmeters bestimmt /Verordnung Nr. 352/ 1968/. Durch dessen Multiplikation mit der Steuerkubikzahl lässt sich nach Gemeinden die relative Produktivität des Wald-

bodens je Hektar bestimmen. Das Ergebnis ist in Abb. 1 wiedergegeben, in der auch die relative Produktivität des Ackerbodens dargestellt ist. Die Produktivität der Ackerböden ist durch vertikale und die der Waldböden durch horizontale Schraffierung bezeichnet. Dabei lassen sich fünf Produktivitätszonen von Acker- und Waldböden unterscheiden. In der Zone I, Südwestfinnland bis Pori-Tampere-Kouvola-Hamina, beläuft sich die relative Produktivität der Ackerböden auf über 100 Punkte, mit Ausnahme des Schärenhofes von Turku sowie der Küstengegend von Süd-Satakunta. Ungefähr dasselbe Gebiet umfassen auch die besten Waldböden, deren relative Produktivität über 45 Punkte beträgt. Eine Ausnahme bilden dann die Schärenhöfe von Åland und Turku, die Küstengegenden Südwestfinnlands sowie das Gebiet Porvoo-Hamina, wo die Waldböden unverkennbar schlechter sind. Die Wälder des Schärenhofes und des Küstengebietes sind denn auch oft Felsenwälder. Im Schärenhof liegen die Tonböden grösstenteils unter dem Meeresspiegel, an der Küsten sind die Wälder der besten Böden im allgemein zu Äckern gerodet, wobei die schlechtesten Wälder übrig geblieben sind.

Nördlich und nordöstlich Südwestfinnlands folgt als nächste die Zone II, eine Art Übergangszone, in der sich die Ergiebigkeit der Ackerböden schnell auf rd. 40-60 Punkte und die der Waldböden auf rd. 30-45 vermindert. Danach kommt Zone III, die bis in die Gegenden Kokkola-Iisalmi-Joensuu reicht. Abgesehen von dem mittleren Teil des Läns Vaasa mit seinen verhältnismässig guten Äckern, ist die relative Ergiebigkeit des Ackerlandes der Zone deutlich unter dem Mittelniveau gelegen, um 40-60 Punkte, im län Mikkeli ist sie sograr noch schlechter /20-40 P./. Die Waldböden sind dagegen besser als das Mittelniveau /30-45 P./, mit Ausnahme des Läns Vaasa, wo ihre Ergiebigkeit nur rd. 150-30 Punkte erreicht.

Zone IV, die bis zu den Gegenden Oulu-Kuhmo reicht, ist in bezug auf die Ackerböden verhältnismässig homogen, ihre Produktivität beläuft sich jedoch nur noch auf 20-40 Punkte oder etwa ein Drittel der Ergiebigkeit der Ackerböden Südwestfinnlands. Auch die Produktivität der Waldböden ist schwächer als bei mittlerem Stand; im Nordteil macht sie sogar weniger als ein Viertel des entsprechenden Wertes von Südwestfinnland aus. In Zone V wiederum ist die relative Produktivität sowohl der Acker- als auch der Waldböden am niedrigsten, die der Ackerböden liegt unter 20 und die der Waldböden unter 15 Punkten. In dieser Zone sind nördlich von Pello-Utajärvi-Kohmo die Steuerboniterungen beinahe ganz unvollendet, so dass sich die Karte für diese Teile auf Schätzung gründet.

Die auf Leistungsfähigkeit des Bodens gegründete Betriebsgrösse in Finnland

Wie eben angeführt, sollte man bei der Grössenklassifizierung des landwirtschaftlichen Betriebes ausser der ihm zur Verfügung stehenden Landfläche auch die Produktivität des Bodens in Betracht ziehen. Die Ackerfläche der Landgüter nach der Agrarstatistik von 1960 /SVT III 54, 1962/ ist aus Abb. 2 zu ersehen. Nach ihr liegen die grössten Landgüter in Südfinnland und Ostbottnien, wo ihre durchschnittliche Ackerfläche in vielen Gemeinden über 10, sogar über 12 ha umfasst. In weiten Teilen Binnenfinnlands macht im Mittel die Ackerfläche über 4-6 ha aus, in Nordfinnland meistenteils 2-4 ha, sogar noch weiniger.

Bei den Wäldern liegen die Verhältnisse anders /Abb. 3/. Eine kleine Waldfläche, bis unter 20 ha je Landgut, ist für Süd- und Westfinnland kennzeichnend. In Seen-Finnland gehört zu den landwirtschaftlichen Betrieben allgemein mehr Wald, meistens etwa 30-40 ha je Landgut oder mindestens 20-30 ha. Dagegen sind in Nordfinnland die durchschnittlichen Waldareale der Landguter im allgemein gross, in Mittellappland über 80 ha oder gar auch mehr umfassend. Werden diese durchschnittlichen Acker- und Waldländereien der Landgüter in bezug auf ihre relative Produktivität umgerechnet, so ergibt sich die auf ihre Produktivität gegründete relative Grösse.

Das Ergebnis ist für die Acker auf Abb. 4 dargestellt. Die mittels der Produktivität umgerechnete durchschnittliche Ackerfläche der landwirtschaftlichen Betriebe ist, abgesehen vom Schärenhof, am grössten in Südwestfinnland, wo sie stellenweise über 12 ha umfasst. Von da aus vermindert sie sich schnell gegen Norden, un schon in Seen-Finnland macht sie 1-4 ha aus sowie nördlich davon unter 1 ha. Entsprechend ist die in bezug auf die Produktivität umgerechnete durchschnittliche Waldfläche je Landgut am grössten im westlichen Seen-Finnland, wo sie über 12 ha umfasst, und am kleinsten in Gemeinden des westlichen und südwestlichen Küstengebietes, wo sie unter 9 ha umfasst, in ausgedehnten Teilen bis zu 3-6 ha.

Durch Zusammenstellung der Angaben auf Abb. 4 sind die nach der relativen Produktivität von Acker- und Waldboden umgerechneten Gesamtgebiete und -zonen der landwirtschaftlichen Betriebe bestimmt worden.

Das Resultat ist auf Abb. 4 wiedergegeben, in der die Gesamtgebieteder landwirtschaftlichen Betriebe durch dünne und die Gesamtzonen durch dicke Linien dargestellt sind. Die der Produk-

tivität nach grössten Betriebe konzentrieren sich in einem einheitlichen Gebiet auf die Ton-Ebenen Eigentlich-Finnlands und die inneren Teile von Uusimaa. Dieses Gebiet ist beinahe lückenlos umgeben von den zur Betriebsgrössenzone II gehörenden Räumen, die im Südwesten den Hauptteil des Küstenschärenhofes umfassen und sich in einem Streifen von wechselnder Breite weit in Binnenfinnland hinein, bis hin nach Ruovesi und Jämsä erstrecken. Andernorts gehören zu ihnen die Umgebung von Helsinki-Porvoo sowie der Westteil Südkareliens. Auch die dritte Zone besteht aus Teilen. Der grössten Teil Alands wie auch Ostbottniens bilden getrennte Gebiete, die durch den zu Zone IV gehörenden Schärenhof sowie den kargen nördlichen Teil von Nord-Satakunta vom übrigen Südfinnland geschieden sind, das seinerseits dem von Hustich /z.B. 1959, S. 79/ festgelegten am weitesten entwickelten Teil Finnlands, dem sog. "Industrie-Finnland", sehr stark zu ähneln scheint. Die vierte Zone umfasst ausser dem besagten Nord-Satakunta einen breiten Streifen von den Gegenden Imatra-Heinola-Kokkola an bis nach denen von Joensuu-Stokamo-Oulu. Des weiteren gehören zu ihr ein Teil des Südwestfinnischen Schärenhofes sowie im Län Lappland das sog. Südwestliche Küstengebiet /vgl. Varjo 1968, S. 361/. Mit Ausnahme von Süd-Ostbottnien decken sich die zur Zone IV gehörenden Räume grösstenteils mit einem Gebiet, für das Hustich /ibid./ die Bezeichnung "Übergangszone" anwendet. Der nördlich davon gelegene Teil Finnlands gliedert sich der Zone V ein, dem Natur-Finnland Hustichs /ibid./, wo die auf die Produktivität gegründete Landgutgrösse am geringsten ist.

Aus den soeben dargelegten Ausführungen geht hervor, dass die in bezug auf die Produktivität umgerechneten durchschnittlichen Acker- und Waldareale völlig von ihren wirklichen mittleren Flächenräumen abweichen. Die umgerechneten Ackerflächen sind

in Südfinnland im allgemeinen grösser als die wirklichen, aber schon in Seen-Finnland ist die Lage umgekehrt. Im Gebiet der besten Wälder ist der Unterschied in Seen-Finnland schon mehr als doppelt so gross. Die grössten Unterschiede bestehen in Nord-Ostbottnien, wo stellenweise das wirkliche Waldareal rd. 40 ha je Betrieb umfasst, aber der umgerechnete nur 3-6 ha. Die in ihrer Ertragsfähigkeit grössten Betriebe liegen denn auch somit im westlichen Seen-Finnland sowie in Uusimaa und die kleinsten in den Ost- und Nordteilen Finnlands. Das Ergebnis zeigt, dass in den agrargeographischen Untersuchungen die Grössenklassifizierung in nunmehr höheren Masse auf die Ertragsfähigkeit des Bodens zu gründen wäre, weil die auf die blosse Landfläche gestützte Klassifizierung irreführend ist.

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Abbildungen

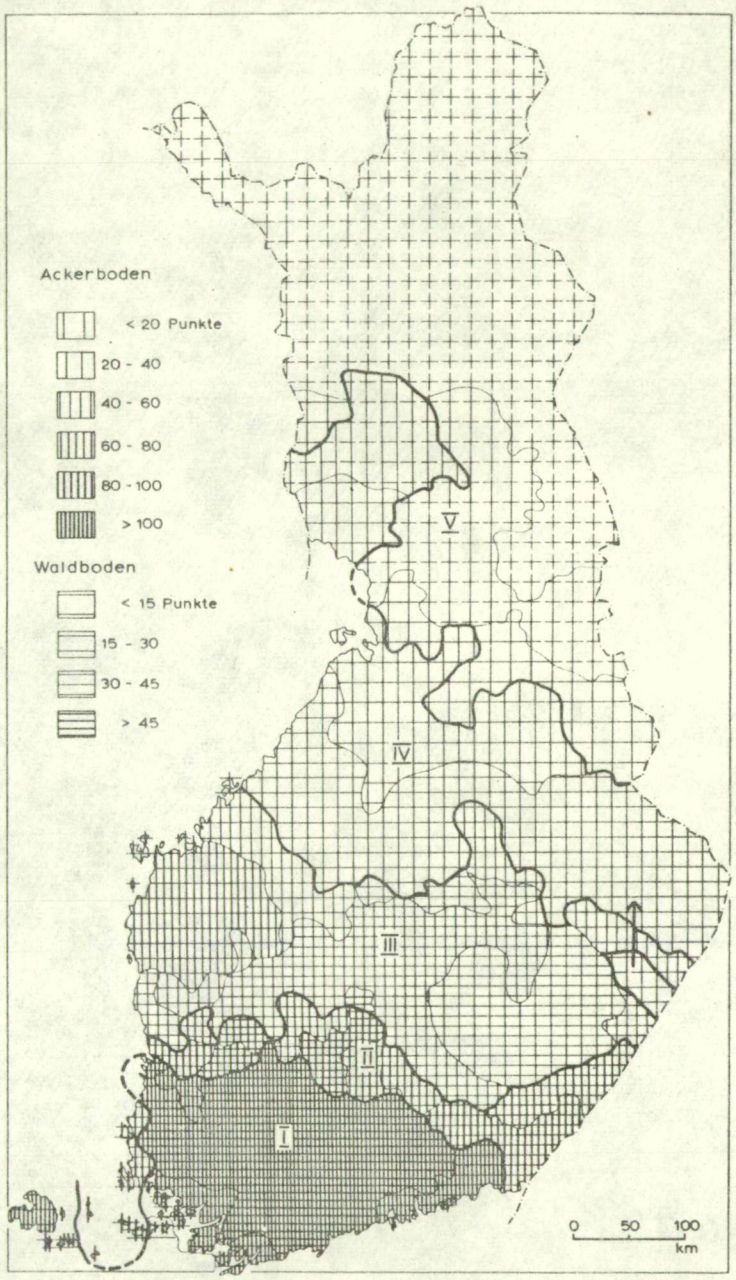
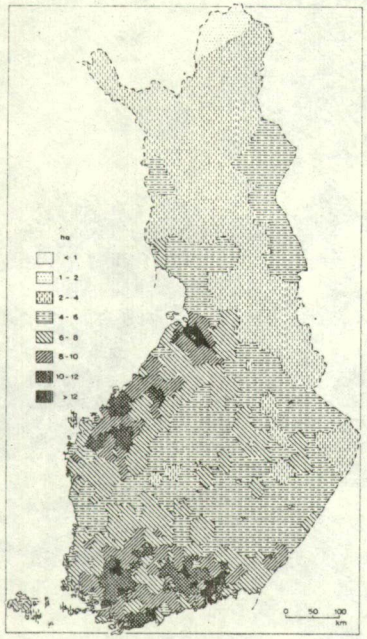

Ackerboden
< 20 Punkte
20 - 40
40 - 60
60 - 80
80 - 100
> 100
Waldboden
< 15 Punkte
15 - 30
30 - 45
> 45
V
IV
III
II
I
0 50 100
km

Abb. 1.



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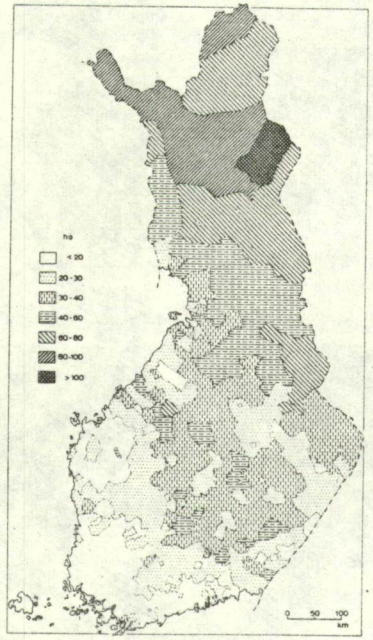

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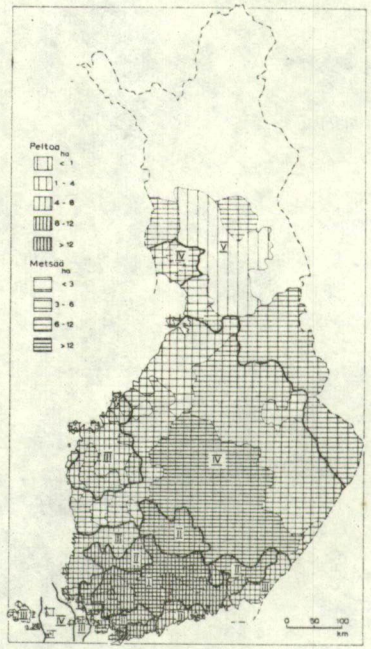

Abb. 4.

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